

POPULAR Computing WEEKLY

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Vol 5 No 39

October arrival for Spectrum Plus 2

AMSTRAD PC

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exclusive pictures



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No Plus 2 till October

THE Spectrum Plus 2 isn't now expected in the shops until mid-October, despite the fact that it was launched at the beginning of this month. At the launch of the machine as the PCW Store, Amstrad said that it was "due in the British High Street later this month," but both WH Smith and Amstrad Distribution say it's not expected in the stores for another three weeks.

The delay is caused by Amstrad, which doesn't usually announce machines until they're ready to go into the stores, and it's not clear if there's any problem with the machine.

As it is practically identical

to the Spectrum 128 it's unlikely that there could be a design problem, but it may be that Amstrad is feeling to make the machine look both old and new software.

The company will however be spending £3.4 million on advertising the machine this Christmas, and Barry Young, managing director of Amstrad Distribution, is predicting that it will take 60 per cent of the games machine market over the next few months.

The new Amstrad PC is however ruffling feathers among some dealers. Amstrad will only sell the machines through what it



describes as "approved Amstrad dealers," and Amstrad Distribution has sent out a letter detailing the requirements for this.

"Unless you are able to meet the criteria as specified, then please do not waste our time or yours," it reads warningly.

The major requirements are that shops selling the PCs should have a "Business Computer Centre," with two staff trained in the Amstrad range and facilities for individual hands-on demonstrations. The Centre should also

be separated from home computers and games software. These conditions are likely to cause severe space and staffing problems for small dealers, but will also mean that many major multiples will need to reorganise their stores.

From Amstrad's point of view it could forever be similar to have smaller dealers duking out of the PC range and continuing to stock the PCW, as this will avoid the two machines getting into too close competition with each other.

Low-cost hardcard planned for PC

AMSTRAD is now predicting that first shipments of its PC will arrive at the end of this week. It is, however, unlikely that hard disc versions of the machine will be available for some time yet, and third parties are already gearing up to plug the gap.

Foremost among these is distributor Nonmember, which has been taken on by Amstrad to supply the PC and which hopes to secure a sup-

ply of hardcards this week.

A hardcard is basically a small Winchester hard disc mounted vertically on a card which is plugged into a PC's expansion slot, and has the advantage of being easy to fit and allowing both floppy drives to continue to be used. Amstrad's hard disc on the other hand fits into the position normally used by one of the floppies.

Nonmember is reluctant to

talk about the cards, but it's believed they'll be available in both 10Mbit and 20Mbit versions. According to spokesman, Eddie Moore, the cost will be comparable to Amstrad-supplied hard disc machines and less than an Amstrad upgrade.

Like the Amstrad hard disc units they will take up one of the machine's three available expansion slots, but because of the width of the card they'll also limit one other slot to a half length card. Because the Amstrad already has most of the RAM and I/O you'll need on board, this, however, is unlikely to be a problem.

Correction

Those of you who have been following the Regular vs Colossal chess game, and are wondering how on earth the bishop managed to move from f1 to a5 in game one, need wonder no longer.

The move should have read 38 f1-a5. The editors will take this into account when deciding the next readers' move.

PCW now stores more

YET another company is to supply a hard disc unit for the Amstrad PCW. The latest upgrade is from A50 Peripherals, and costs £334 for a 10Mbit drive and £589 for the 20Mbit. The units are external, and include an extension to the PCW's expansion bus so that all existing add-ons can be used at the same time.

The complete setup consists of a controller module which plugs into the expansion socket of the PCW and a combined drive unit and power supply that sits under the PCW itself.

Details from A50 Peripherals, 03224-49235/6.

Amstrad PC user group

A user group for the Amstrad PC has been formed already. The 1512 Independent User Group intends to publish a regular newsletter, run a helpline, offer software discounts, hold meetings and run a public domain software library. Membership is £20 a year. Further information is available from Paul Mallon at 0732-480908.



A hard act to follow . . .

Sidcar to launch soon?

COMMODORE is thought to be preparing to launch Sidcar, its PC emulator for the Amiga, in the UK shortly. First isn't yet certain, but according to a source within the company it's to be pushed low to match the price of the Amiga 3, the new entry-level Amiga Commodore intends to announce at the US Comdex show in November.

Commodore UK general manager Chris Keady is still adamant that there will be no new Amigas in the UK, either announced or in the shops, before Christmas, and although a spokesman confirmed that there would be an announcement from the company this week, he categorically denied that it would be Amiga-related.

Keady however doesn't rule out the possibility of new products being shown elsewhere in the world. Commodore UK is currently thought to be working on both the Amiga and the 64 range, with the Amiga, a 96020 machine coming in above the current Amiga and a lower cost development, the Amiga 3, coming in under it.

The 64 range is also thought to be undergoing revision. The recently launched 64c is being viewed by industry sources as a stop-gap machine that will be the subject of development, reducing the chip set to make it cheaper to produce and

easier to upgrade. This of course clashes with the 128, which was originally intended as the upgrade path for the 64, but which is expected to build and has largely failed to displace the older machine.

Commodore UK denies that it is withdrawing the machine, but of the two models only the 1280, which is too expensive for a mass-market machine, is now readily available in the UK. The company therefore needs to be able to price its 8-bit machines lower if it is to remain in the home market.

Acorn shows up in Manchester

THIS weekend's Electron and BBC Micro User Show will feature Acorn itself, showing its new Master Compact machine. Among the machines expected are a £700 Winchester system, £79 Master console unit and a £16.95 Rom cartridge adaptor from Vigil, while Core Electronics will be showing cheap Master cartridges and an extender to allow old Rom cartridges to work on the new machines.

Among the other companies present will be Norwich Computers, showing a video Rom for Wordwise Plus, and Advanced Computer products with a new disc interface for the Electron.

Software Hotlines

Not wishing to repeat the fate of their last major licensing deal (Spectrum), **Raymond** is pulling all the stops out for *Star Trek* - as the developers versions set for release (see below). It's big (1000 screens, complex 255 sub-plots), and looks lovely on the belly (lots of digitised pictures of crew members, etc).

The plot has the Enterprise investigating the mysterious detection of Federation starships within an area of space called 'The Guinevere Zone', centred around the planet Atlantis. Lucky stuff if they don't run out of memory, it could well be the game of the year ... although exactly which year is still uncertain.

It's official - multi-player stand alone arcade games are in, the whole thing started off around a year or so ago in this country with that one to four player fantasy adventure from **Atari**, *Gauntlet*, which to be emulated in some fashion by **US Gold** (*Gauntlet II* - a two player adaptation - should be hitting the arcade soon). Then came **Sage's** attempt at the multi-player market, *Chaos*. Although placed in a space-age setting, this shoot-em-up was never as graphically impressive as *Gauntlet*.

This was followed by **Super Sprint**. Again from **Atari**, this is a 1-3 player racing game, derived from their multi-screeners game *Sprint*. Possibly the best game in the arcade at the moment, **Electric**



Kirk quarantined

Dreams is in negotiations presently for the home computer rights. But who is going to be the first to go for *Star Trek* - the latest multi-player - the latest multi-player game in which you each play a gigantic pirate taking apart an American city - complete with National Guard anti-protesters and innocent civilians to stamp. Straight out of *King Kong*, expect one of the big boys to snap this one up pronto.

Here's a heartening tale for any lone programmer. Dominic Robinson started at a BBC Computing course at Bristol University - but decided that they weren't teaching him the kind of things he wanted to know. After leaving the course around a bit on the Spectrum, came up with a few ideas on how to implement *Galaxian* on it ... then went to visit Hewson.

Hewson, by coincidence, had already been thinking along the same lines - so the company took him on, and the rest is history. Everyone that saw the demo at the PCW show couldn't fail to be impressed - it'll be out on 28 October. **John Cook**

First launches £50 PC integrated package

PRICES for integrated software packages for the PC are set to tumble shortly, with the launch of **Decision Decree**, a £49.95 combination spreadsheet and word processor from **First Software**. As the package will be priced lower than most PC word processors it should provide stiff competition for the reduced price **Framework** (see separate story) despite the fact

that it doesn't include a database.

First will also be importing a new database, **Atte**, to be priced at £98. This again will be under the predicted price for the PC/XT version of **Atte** II.

Details from **First Software**, Unit 200, Horseshoe Road, Horseshoe Park, Pangbourne, Bucks RG8 3JH 0336 53446.



Enterprise score

Apple launches new 16-bit IIGS

APPLE'S follow-up to the Apple II, the IIGS, is to go on sale towards the end of the year at an entry-level price of £999. The machine is compatible with the II series - which it will replace - but uses the 85C816 processor, which is the 16-bit version of the 85C02 used in the Apple II.

The Basic system consists of 256K Ram, monochrome monitor, mouse and external 3½ inch 800K drive unit. The main system unit has components and ROM outputs, headphone jack, two mouse ports, disc interface for both 5¼ inch and 3½ inch drives, two serial ports, communications chip and parallel port. It also has eight expansion slots, and sports a synthesiser chip. Ram can be expanded to 8Mb and the 128K Rom to 1Mb, and resolution is 640 x 350, with seven display modes.



The new Apple

Apple confirms that the IIe and IIc are now dead, and in this country proposes to target the new machine at small businesses and at the II's ex-

isting user base. An upgrade for existing users will be available in the US, but Apple UK is unlikely to bring it into this country.

Horse feathers KBS' nest

KBS Interactive Software considers that its latest idea is a winner. The company claims to have been working on the use of expert and rule-based menu systems for use in everyday applications and, says Cliff Widdow-Gardner, "We decided to apply rule-based theory to what most believe is pure chance - making a profit at the races."

KBS claims a success rate of 80 per cent plus, and is to

launch the system on the open market at the beginning of next year. Purists eager to press money into KBS' hands before then should, however, bear in mind that similar computerised systems were being claimed for last week's spectacular crash on the New York Stock Exchange...

In a separate initiative KBS is also opening a 'software factory' near its Tyne & Wear base. The idea of the factory

is to offer young programmers working space and office facilities for £13.60 a week, and to try to encourage a cross-flow of business between the programmers and KBS. Interested parties should phone 0207 943082.

NLQ extras for Epsoms

THE M&M Technik NLQ Printer Buffer is a buffer and NLQ upgrade for dot matrix printers. The buffer can be either 8K or 32K, while the NLQ feature, which requires an Epson-compatible printer with quasi-density graphics, allows print in four character sizes and a variety of fonts. Three of these are supplied with the buffer, and further versions can be obtained from M&M. The units cost £129 for 8K and £169 for 32K.

Details from M&M Technik, Abaddon Business Centre, 240-248 Chesham Road, Dobby (082 844).

Cheap dBase out soon for the PC

A £120 version of dBase II should be available for the Amstrad PC later this year. The program is already available in CP/M format for the Amstrad PCW, but like other major software producers publisher Ashton-Tate had until recently set itself against price cuts on its PC software range.

But now, in a spectacular volte face, A-T has bowed to the inevitable and has invited vendors from third party distributors to handle support and marketing for both dBase II and a low-cost version of the Foxpro/Integrated package. The latter will be cut down to avoid damaging the company's existing market for the full version, but dBase II, which has to an extent been superseded by dBase III, will be practically a full version.

Mailmerge for Locoscript

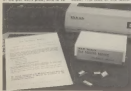
CMAS, a mailmerge utility designed to work with Locoscript, it supports right justification, tabs and centred text and allows you to select particular people from your list before doing a mailshot. It costs £29.95.

Details from Proteus Computing, 2 Wilby Road, London W6 0J1 Tel 0204 2550.

Real-time clock for the 64

ELIC-TRONIC and Computer Workshop have produced a battery backed CMOS Ram and real-time clock plug-in module for the Commodore 64. The module's timing facilities aren't affected by the 64's internal timer, which is often interrupted, and it includes 50 bytes of CMOS Ram which can be used to store information such as sleep data even when the machine is switched off. The module costs £29.95 in kit form, or £30.45 ready built.

Details from Electronic and Computer Workshop, 171 Ryecliffe Road, Chalfont, Bucks CM1 1BY 02945 282145.



M&M Technik's new buffer

New printers from Citizen

CITIZEN has launched three new printers — two in its MSP series and one new high quality model, the HDP 40.

The MSP 102 and 152 are functionally identical, but the 102 is 80 column wide the 152 is 132. Draft output speed is 160 cps and near letter quality 40 cps. The machines have 8K buffer, full bit-image graphics, proportional spacing and EBCDIC and IBM compatibility built in. They cost £349 and £449 respectively.

The HDP 40 prints at 1200 cps in draft, 132 cps in correspondence and 60 cps in letter quality. It has 120 column wide, Cerametics and R2322 interfaces as standard, and optional IBM and Epson emulations. The HDP 40, which costs £825, has a 24K buffer and can take additional plug-in fonts.

Viewdata for free

THE Midlands Training Centre has set up a free viewdata service whose subject matter ranges from local Hillingdon information, through computer news, to information about the centre itself. The service includes a wide range of machine specific databases and a mailbox facility, and runs 24 hours a day, 365 days a year.



Details from Hillingdon (see, *Western House*, Wellesford Road, The Trading Estate, Uxbridge, Middlesex. Tel: 0895 05848. Pressed material 0895 31726 or 0895 58842 for viewdata access.

CD survey published

CD-ROM Standards: The Book is the latest phase in the music industry's plans to develop a standard volume and file structure for CD-ROM drives. The book puts forward the standard proposal developed by the High Store (a division in the firm of the same name) Group, leading participants in which include BBC, Apple and Microsoft. It is described by the publishers, Learned Information and Informax, as the "definitive guide to CD-ROM standards," and is being sold for £50.

Details from Learned Information, Woodside, Welwyn Hatfield, CDD1 1SAU. Tel: 0845 732276.

Smart switches for Data

CRAFT Data is now importing a range of switch devices, designed by US company Via West, to allow users to share peripherals. The switches cover IBM, Cerametics, R2322 and other common interfaces, and switching between devices can be either manual or through software. They need no external power supply, and start at £30.

Details from Craft Data, 52 Broad Street, Cheshire, Bucks HP5 3ED. Tel: 0494 778225.

User group with Flare

FLARE Technology's Fast Music Machine has acquired an official user group just weeks after its launch. Price and benefits of membership had yet to be fixed as Popular went to press, but further information is available from organizer Al Straker, 18 Sandringham Road, London NW2 5TP.

Taspro goes onto Amstrad

TASPRO, Seven Stars' Ramword utility which allows proportional spacing is justified Ramword copy, has now been converted to run with Ramword 4.0 or 4.04-D. The pro-

gram includes pause control for disproofs, allowing proofsheets to be changed during printing, and handling of alternate mode characters in Epson F800 proportional mode. It can also justify re-defined characters, and supports a wide range of printers. Price is £7.95.

Details from Seven Stars Publishing, 34 Squirrel Row, Marlow, Bucks SL7 3PA. Tel: 0494 3445.

ST gains Transputer

WETA is selling its K-max parallel RISC processing system for the ST for a cost £1,306. The system consists of a dual processor board containing two transputer chips and two blocks of Ram of 256K each. The system has a potential speed of 15 Mips (million instructions per second).

Technical breaks can get details from Kura, 12 Horse-chase Park, Pangbourne, Berks RG8 7JW. Tel: 076387 4335.

Correction

In *Popular*, September 11, we inadvertently gave the incorrect number for Memotech Computers, in a reply to a letter.

The correct number is 0893 78881, and Memotech's new address is Unit 24, Station Lane Industrial Estate, Wilmsley, Dees.

SEPTEMBER

26-28 September
Electron and BBC Micro User Show

19851, Watlington
Details: Software, hardware and peripherals for BBC machines.
Prices: £1 adults, £1 children, £1 discount for advance booking.
Organiser: Cambridge Exhibitions, 011-458 8825.

OCTOBER

3-5 October
The Amstrad Computer Show

Harwell, London
Details: Home and business software and hardware for the Amstrad range.

Prices: £1 adults, £1 children, £1 discount for advance booking.
Organiser: Cambridge Exhibitions, 011-458 8825.

4 October
2nd Welsh Dragon Computer Show

Cardiff, Wales (open)
Details: Software and hardware for the Dragon.
Prices: £1 adults, children and OAPs 50p.
Organiser: John Price, 04921 5876.

20-21 October
Hampshire Computer Fair
Salisbury, Wiltshire
Details: Business computers.

Prices: Free entry for business registration.
Organiser: Technical Exhibitions, 0752 20207.

NOVEMBER

7-9 November
Electron and BBC Micro User Show

New International Hall, Graydon Street, London SW1
Details: Hardware, software and peripherals for the Electron, BBC micro and Master series.
Prices: £3 adults, £2 children, £1 discount for advance booking.
Organiser: Cambridge Exhibitions, 011-458 8825.

8 November
UK146 National One-to-One Show

National Motor Cycle Museum, Birmingham
Details: One-to-one software and hardware.
Prices: Free.
Organiser: BMSU, 0782 3388.

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organisers before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organisers.

To dump on K-Graph

We appreciated your publication of a review of our business graphics package K-Graph for the Atari ST series in last week's edition of *Popular Computing Weekly*.

Unfortunately the reviewer seems to have been unable to print a screen dump and claims it cannot be done, this is incorrect. Up to four windows can be displayed on the screen simultaneously, this would be pointless if the display could not be printed. To obtain a screen dump all the user has to do is pick up the 'Picture Icon' and drop it on the 'Printer Icon', exactly as described on page 88 of the K-Graph manual.

An example of the results obtainable by the above method can be seen in our enclosed software leaflet.

As the printing is done by using icons and drop-down menus, we were surprised that this is 'too fiddly' for Mr.

Evans, there are certainly several options built in, though none of these could be described as difficult.

Jon Day
Sales Manager
Kuma Software

Xen X2

Looking at the two articles on Xen-Basic (*Popular*, September 4/11), may I make two points?

Firstly, the command [Fogles] can be used on CPC 664s and 6128s by changing two numbers in Line 300—the number 121 to the fourth row of Line 350 becomes 102, and 128 on the 6128 row becomes 100. These are the four bytes of the addresses where the file and start of Basic are stored.

Secondly, the description of [Mongrel] has a mistake—Fogles should be 0 to examine the lower floor.

On a general note, I think it would be better to print the data for machine code programs in hex rather than dec-

Can't Fool an Amsdos

Your reply in *Peak and Poles*, September 4 concerning loading .Com files under AMSDOS unfortunately doesn't work. No amount of renaming will fool AMSDOS because it creates headers for each file containing all the information about file name, type, length, etc.

I have had this problem myself as I wanted to use Cerep as a diskcontroller. Can file?

The solution is first to create a dummy file under AMSDOS with

```
SAVE "TEST.BMP",A,2000,1000
```

where length is the size of the .Com file you wish to transfer. Then boot CP/M and use COPY to load the dummy file with

```
CPY TEST.BMP
```

Examine the header with `g100` now if you wish. An

email: 285.56,187 is totally incomprehensible, but CD,SA,88 is reasonably recognizable (to Amstrad buffs

interesting point is that if you have renamed the file the header still contains the original name).

Next copy your .Com file using COPY with

```
TEST.COM test.bmp
```

80h being the offset required so as not to overwrite the header. Exit COPY with `q0` and save the final version of Test with

```
SAVE length+pages TEST.BMP
```

The length in pages is the original .Com file length plus 80h, the header length, all divided by 256. AMSDOS will now recognise your CP/M .Com file. It sounds a bit involved, but works fine. If anyone knows a better way I would like to know.

Alan And
Birmingham

at least) as the call to print a character.

Again Phil. Durdin
continued on page 108

Puzzle

Puzzle No 326

There are three boxes on a shelf just about to burst. Two contain black beads, but you can remove the coloured beads contained therein.

On each line is a label, but unfortunately the labels have got mixed up and are on the wrong boxes. Inside each box are two beads in the correct combination, ie, red/red, white/white, red/white.

The object is to determine the minimum number of beads to remove from the boxes in order to discover which beads are in which box.

Solution to Puzzle No 321

Answer:

The final arrangement of code is...

```

R T R T R T T T
R R T R T T T T
R R R T R T T T
R R R R T T T T
R R R R T T T T
R R R R T T T T
R R R R T T T T
R R R R T T T T
R R R R T T T T
R R R R T T T T

```

Solution

The solution utilizes a two dimensional array `h(2,4)` to represent the chess board. Each value in the array is originally set to 1. This represents a coin with heads up/heads up. Using conventional R and T you can square up taken on the order displayed in the puzzle. Lines 70 to 340 'turn' all coins in one order horizontally, vertically or diagonally. This is

exactly the same as the squares stacked to the queen in chess. The coins are 'turned' by multiplying the value in that unit of the array by minus 1, then +1 becomes -1, and -1 becomes +1. Line 60 'turn' the coin provided the queen stands only if it is heads up/heads up.

Finally lines 1000 to 1030 print out the final array, plus 1 including 'turns', minus 1 including 'turns'.

Winners of Puzzle No 321

The winner this week is Mr J. Fisher of Maidenhead, Berks, who will be receiving £10.

Prizes

The closing date for Puzzle No 295 is October 13.

```

10 FOR
20 DIM M(50,50)
30 FOR I=1 TO 50
40 M(I,1)=1:GET=NEXT
50 FOR J=1 TO 50:FOR K=1 TO 50
60 IF M(I,J)=1 THEN M(I,J)=M(I,J)+1
70 M(I,50)=1
80 M(50,1)=1
90 IF M(I,50) THEN M(I,50)=M(I,50)+1:GET=100
100 M(50,50)=1
110 M(1,50)=1
120 IF M(1,50) THEN M(1,50)=M(1,50)+1:GET=100
130 M(50,1)=1
140 M(50,1)=1
150 IF M(50,1) THEN M(50,1)=M(50,1)+1:GET=100
160 M(1,50)=1
170 M(1,50)=1
180 IF M(1,50) THEN M(1,50)=M(1,50)+1:GET=100
190 M(50,1)=1
200 M(50,1)=1:GET=100

```

```

210 IF M(50,1) THEN M(50,1)=M(50,1)+1:GET=100
220 M(1,50)=1
230 M(1,50)=1
240 M(1,50)=1:GET=100
250 M(50,1)=1
260 M(50,1)=1:GET=100
270 IF M(50,1) THEN M(50,1)=M(50,1)+1:GET=100
280 M(1,50)=1
290 M(1,50)=1
300 IF M(1,50) THEN M(1,50)=M(1,50)+1:GET=100
310 M(50,1)=1
320 M(50,1)=1:GET=100
330 M(1,50)=1
340 M(1,50)=1:GET=100
350 M(1,50)=1:GET=100
360 M(1,50)=1:GET=100
370 M(1,50)=1:GET=100
380 M(1,50)=1:GET=100
390 M(1,50)=1:GET=100
400 M(1,50)=1:GET=100
410 M(1,50)=1:GET=100
420 M(1,50)=1:GET=100
430 M(1,50)=1:GET=100
440 M(1,50)=1:GET=100
450 M(1,50)=1:GET=100
460 M(1,50)=1:GET=100
470 M(1,50)=1:GET=100
480 M(1,50)=1:GET=100
490 M(1,50)=1:GET=100
500 M(1,50)=1:GET=100

```


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Fax: 01-377 0022

Eidendown price list

I am writing concerning a serious misprint in the PCW show report in *Popular Computing Weekly*, September 11. The misprint concerns our software titles for the Am286, 386, 486, Space Station, 3D Adventure, Pentabiter and Mr. Space.

The programs were criticised as being a little on the expensive side. I agree. The reporter gave incorrect prices: *Space Station* and *Mr. Space* are £24.95 (not £29.95), while the others are only £19.95 each (not £24.95).

Reference is also made to an unknown game with rather colourful graphics, but small sprites. This game, *Mounted Heroes*, is part of our super demo disc, which includes this game, a slide show and some desktops.

What's more, it's absolutely free of charge (save the cost of the disc) and can be obtained either by sending a disc to us with an S.A.R., or from most Atari dealers. Readers may like to know that the games can be reinstalled in the shops by their distinctive triangular packaging.

AtariSoft Software

Beginners be warned!

A warning to beginners like myself: it was not until I saw my letter in *Popular*, 26 August, headed 'Default dejected' that I realised that my recently bought printer CP 60 Type 1, prints out lowercase g very similar to lowercase q. Thus it was no fault of your typographers that my reference to line 145 was printed to include qd5756,qd5756. In other words (and trying to type with my fingers crossed), the person should have read qd5756,qd5756.

By way of consolation, here is a little tip for program factors: when you finish typing a page, one line one line to record your last line number. When you recompute, load and hit F to find your starting place. If you update the number at the end of each period it will keep the lead in your pencil.

Joseph G Barry
Northants

A new command

With regard to Simon Goodwin's R2S program - 32 new commands for the Amstrad CPCs, *Popular*, September 4 - he deserves top marks.

However, I found a small mistake with one of the commands. The command *AScreen* should be *AScroll* - this is given in the Help command.

Also here is a little addition to save space and loading time:

(Replace line 50 in the main program with:

MOV A5,0 "R2S.BAT",A:47000,1455

Then, to load, just

MEMORY COPY
LOAD "R2S.BAT",A:1000,CALL
A:1000

Kate Foster
Market Harborough



Questions...

With reference to the article on pages 12 to 13 of *Popular Computing Weekly* 11-17 September 1989 that explained how to expand the Amstrad DMF-2000's buffer to 6K. The article mentioned that a suitable 8K Ram chip could be obtained from RS part 301-9700, but did not give an address for this company. I would be grateful if you would publish the address.

One further point, on my printer the three pads marked J3 have a link wire going from the middle pad to the right hand pad on the top of the circuit board (looking at the board in the same orientation as in figure 2 in the article) and not as stated in the article a PCB track on the underside.

Hence it is necessary to cut or remove this link wire and then to connect the left hand pad

to the middle pad. This may be of help to some readers with particular interest in this article who may be experiencing some confusion over this point.

A Fisher

Peckham, Surrey

The Ram chip in question (see letter below) is the 8264, 8K (Radio Shack) can be contacted at Lennex Road, Wotton Industrial Estate, Croy, Northants NN17 5WS 0535 291281.

And answers...

Having read with interest the article on the expansion of the Amstrad DMF2000 printer buffer, *Popular* September 11, I have the following comments to make. I have been doing this modification to the printer for some time now and I am afraid that Mr. Rance has a lot of his facts wrong. The most important thing that I think readers should know is that just by taking the case off the printer and removing the chip, will invalidate the Amstrad warranty. However, this is not the most important part of the problem.

Point number one. The 8K Ram chip to use is not a 8784 but a 8264 and it is a 28 pin chip, which can be purchased from any good electronics store for less than £3.

Point number two. There is no need for the PCB to be removed from the casing as the link J3 should have a removable top, which when taken off can be changed to the other side, i.e. the in the drawing but without the need of any tools except a small pair of pliers.

I hope that this will clear up a few of the problems that might occur when people without too much technical knowledge try to use a soldering iron. I might add that this modification to the DMF2000 is a very straightforward for anyone to tackle. It seems to me that it was the intention of Amstrad to put an 8K buffer in, but changed their minds at the last minute.

I hope that this has cleared up one or two points on this matter.

J P Palmer
Warrington
Cheshire

Dave Rance replies: Indeed the 8264 CMOS 8K by 8-bit Ram chip is the one you want. My own DMF printer's J3 link does not have a removable top, but I can well believe that some models do.

To put it in black and white

May I clarify the situation regarding the "monochrome" option for the Amstrad PC1612, in common with the CPC484. The PC1612 is fundamentally a colour computer, the "monochrome" monitor converting each individual colour to a different shade of grey.

Thus the assertion by John Lattice in *Popular*, September 18, that PC games will not run on a monochrome Amstrad PC is incorrect. I suspect he is confusing our "monochrome" implementation with the IBM/Hercules monochrome standard (which you can of course fit, with a suitable monitor, in one of our expansion slots).

As suggested in his review on page 18, games software houses are converting their games to use the Amstrad 16 colour standard and mouse. At the PCW show we have already demonstrated *Cyber Chess* and *Alex Hopping Doctor*, both of which use the Amstrad 16 colour mode and mouse (and are available from Amstrad).

R. Perry

Technical Manager

Amstrad Customer Electronics
John Lattice replies: Mr Perry is quite correct, and my apparent assertion that "If you have a monochrome monitor none of the games will run" is actually a load of old codswallop. The text as published didn't, however, reflect what I originally wrote. My point initially was that you can't buy a bottom of the range, non-Amstrad PC compatible with mouse monitor and expect games software to run, because they don't in general have a graphics adaptor. The Amstrad, as Mr Perry so politely points out, doesn't have this problem.

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Atari versus Amstrad

John Lattice talks to Atari president Sam Tramiel about the newest Atari computers

If the recent PCW show proved anything, it was that the future market is changing into two new strands.

Amstrad launched its PC in the wake of the show, and the machine, although an excellent implementation of the IBM standard, is in no means new. Like Amstrad's other ranges it is essentially a well-assorted package of mass-produced products, and technically breaks no new ground.

The other strand is currently represented by Atari, which although clearly out-distanced by Amstrad at the show, was making the virtue of high tech and exploring the issue of packaging to everyone who'll listen.

There's generally at least one Tramiel holding court to the press at each major show, and this time, although Jack was absent, some Sam and Leonard were filling the slot admirably in the company's home US market. Amstrad hasn't

"The Atari ST will be available in a new housing, so you'll either get it as a complete package or à la carte."

— Sam Tramiel
on the new
Atari machines

launched keyboard and monitor based on the ST. According to Tramiel the machine is already in prototype form, and will be launched directly against Amstrad and the clones.

It'll mean the ST will be also available

under Amstrad, it will be either the same price or slightly over," the argument being that the ST is easily superior to the PC technically, and can therefore sustain some price disadvantage.

But it's to compete with Amstrad on price Atari has a problem. Amstrad now has an entry level, single drive machine with launched retail value for £469, and even if Atari were to produce a bundled version of the 520ST to compare here — which clearly wasn't what Tramiel was talking about — it would have to drop the machine's price by around £100, with similar implications for the rest of the range.

Launch date is still equivocal, as Tramiel would clearly like to get the new version STs out this November, while general manager Max Rantbridge guarantees "the new line machines before November" (just like's November Fair), then undercuts himself by saying that

because the more market changes so fast, that statement only holds good for two weeks.

Rantbridge also categorically denies that Atari will be launching a 640K Amstrad-beater, and changes the subject when it's suggested Atari might currently be asking whether to go for Amstrad or not.

As for as Sam Tramiel is concerned, it's more a case of how than whether.

Clearly he wants the ST to supplant the PC as a world

standard, and clearly he wants to begin to make this happen, but he's still looking at market conditions — British market conditions in particular. The question — which he's not too proud to ask people — is whether the ST can compete at a combination of power and price, or whether it can only face Amstrad by competing on price.

If the answer is price, then the next question Atari must ask itself is whether it can afford it. If it decides it can, we might just see some interesting new launches a lot earlier than November.



made as impact and won't do until it launches its PC show next spring, so it's curious that Atari president Sam Tramiel already talks of the British company as a major competitor. The US is currently pretty well overrun with cheap PC clones, and although 68000-based machines like the ST, Macintosh and Amiga have managed to carve out a niche for themselves, they too are so close to achieving mass retail status.

Considering the conditions it would seem logical for companies like Atari to begin showing the machines and wait for the PC show to blow over.

Sam Tramiel, however, doesn't accept this, seeing the PC standard as something Atari should be in position to compete with. Asked how he'll do this he waves his hand only towards the corner of the room. "Well that," he says.

The "that" in question was, at the time of the PCW show, a mock-up of a new PC-style package of system unit, dis-

in a new housing, so you'll get a system as a complete package or à la carte." The mock-up bore the legend "20868T", but Atari isn't saying what it will eventually be called.

Tramiel seemed to be unsure whether the basic machine will have 256K or 512K of RAM as standard, but it seems likely that first models will be 68000-based, with 68020 versions to follow.

Pressed on price, Tramiel first says it will be priced "competitively", then elaborates.

"There's no reason for it to be priced

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Mathews — don't need anything in jail. Todd has two more kids to be married next week, and after that, we'll give the guys beer, and maybe drop a few on them.

The prizes

Up for grabs are some pretty classy prizes. Five brand new Spectrum Plus 2 will go to the first five winners, then we've got ten Star Macintosh printers to give to the next winners. And that's not to mention the next 50 winners will receive a Mastercard Magazine joystick. So don't miss this page - with growing lists there of other, you can't afford not to enter.



Picture 8 (above): Which film featured these windows?



Picture 6 (left): Not an old, Newt perhaps, but maybe more in the series, does this still count, does?

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Continued from page 10

Figure 1

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DATE OF BIRTH ☐ MONTH ☐ DAY ☐ YEAR _____

SEX ☐ MALE ☐ FEMALE

RACE ☐ WHITE ☐ BLACK ☐ HISPANIC ☐ ASIAN ☐ OTHER _____

RELIGION ☐ CATHOLIC ☐ PROTESTANT ☐ JEW ☐ MUSLIM ☐ OTHER _____

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ADDITIONAL INFORMATION

1. ☐ MARRIED ☐ SINGLE ☐ DIVORCED ☐ WIDOWED

2. ☐ CHILDREN ☐ YES ☐ NO

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4. ☐ SIBLINGS ☐ YES ☐ NO

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11. 1992年12月11日，中国正式成为世界贸易组织（WTO）的成员国。

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[illegible]

	With Underseed	With Overseed	With Overseed
1. Establishment	1.0000	1.0000	1.0000
2. Yield (lb/acre)	1.0000	1.0000	1.0000
3. Quality (lb/acre)	1.0000	1.0000	1.0000

Source: Data from *Journal of Agricultural Research*, 1950, 41: 1-10.

Notes: 1. The data are based on the results of a field experiment conducted by the author. 2. The data are based on the results of a field experiment conducted by the author. 3. The data are based on the results of a field experiment conducted by the author.

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Chances are that the United States is still in the process of recovering from the economic recession that began in 2001. The recession has caused a significant loss of jobs and income, and it has also led to a decline in the value of the U.S. dollar. The U.S. dollar is the world's primary reserve currency, and its value is a key factor in the global economy. A decline in the value of the U.S. dollar can lead to a loss of confidence in the U.S. dollar, which can in turn lead to a decline in the value of the U.S. dollar. This can be a vicious cycle that is difficult to break. The U.S. government has taken steps to address the problem, but it is still unclear whether these steps will be enough to restore confidence in the U.S. dollar.

The basic alternative for the ST

A new Basic is something that the ST is in need of. On paper there's nothing actually wrong with ST Basic, but a combination of bugs, the random destruction of the contents of using variables probably being the worst, and the awful editor makes programming a right on impossible chore.

So, if you can't be bothered waiting for Atari to replace it, sometimes in the distant future, and you want to do some programming that an alternative is worth considering.

Fast ST Basic is one such alternative, from Computer Concepts, well known for their BBC software. Indeed, there is a certain BBC Basic flavour to some of the commands available. Not only that, but a number of word processing features have been included as well.

If you're going to call a product Fast ST Basic then to retain credibility it should knock along at decent pace. In fact it does more than that, it positively flies. Below are the results, with the Basic and the PCW benchmarks, beating everything in sight from all eight bit machines (including the Amstrad PC altered to 88000 based computers like the GL and Macintosh).

Benchmark No.	Speed (seconds)
1	0.148
2	0.58
3	1.326
4	1.488
5	1.81
6	2.58
7	4.188
8	2.23

Average: 1.837 seconds

The first thing to note about Fast ST Basic is that unlike the official language, it is supplied on a 128k cartridge which takes up to last memory. After a couple of clicks on the relevant icons, the two main windows of Fast Basic appear almost instantaneously.

These are the edit and output windows. All program output is shown in the output window, naturally, but using some of the available commands it's quite easy to print

outside it, anywhere on the screen in fact.

The edit window allows the inputting of programs lines as well as correcting and editing facilities. Amongst the editing options are the facilities to cut, copy, paste and clear chunks of a program listing. The word processing theme continues with a delete and replace feature and the fact that you can have two different programs in memory in segments which are allocated 12k each (something is just also there) at the same time, although they won't run concurrently.

The other window available is the immediate window which is basically used for testing what a particular command will do without having to run a program.

Building of structured programming will be well pleased, because as well as offering DoFrac... EndProc Repeat... Until, If... Then... Else, Doit and While... Wend constructs, line numbers are completely optional in the program. If used, line numbers are simply utilised as labels and so are not automatically sorted as in other Basics. A program numbered 20, 30, 10, 5 will run in exactly that order, not the usual numerical order.

The ST is renowned for its quality graphics so it's nice to see 64 graphics related commands. It's possible to set the various patterns and colours used by the commands that draw lines, circles, polygons, arcs, elliptical versions of the preceding commands, boxes, polygons, rectangles with rounded edges, fills and plot points.

A useful feature is the ability to print text, in various styles, in any graphics position on the screen, providing that the location is inside the user defined graphics area (which can be outside the output window). Over there, text can be centred in any direction for any distance, one line at a time, and below me, it does it very quickly, with just one command. Text can also be justified on a page rather than character square basis.

Most impressive of all is the



A famous smile to test ST Basic

the command, a software timer. Once an area of the screen has been defined, it can be moved around at will, although will need parameters figured if it's certainly no doddle.

With the Palette command available, any of the ST's 512 possible colours can be displayed, something else that ST Basic could not manage to do.

An interesting pseudo variable is *Physbase* which can be read or written and determines which part of memory is used as the screen display. So, various picture screens could be loaded in and that displayed instantly by changing the value of *Physbase* to point to them. *Logbase* is a related pseudo variable which points to where a memory at screen cursor will end up. So, it's quite feasible to use an entirely new display area, free from the constraints of the output window, the size of which cannot fill defined from within a program anyway.

File handling, serial and random access, is covered fairly comprehensively, the commands allowing the creation of directories and files and the reading and writing of characters, or blocks of characters, within them.

Perhaps the most staggering advantage of Fast ST Basic over the official language concerns using the various facilities offered by GEM. Fast ST Basic has such no commands, whereas Fast ST Basic is incredibly comprehensive, providing the means to do virtually anything. Mouse control, drop-down menus, dialogues

and alert boxes, windows and the like are all available. However, it has to be said that for the more advanced user needs a thorough knowledge of the subject is required before attempting to use them.

And finally, there is an essential feature which enables Basic and assembly language commands to fill output together, in 800 mode info. Unfortunately there are only a mere 11 pages of the manual devoted to the assembler which can hardly be said to fill enough.

Fast ST Basic is not perfect, program lines can be longer than the edit window leaving the left hand side of the line to waste as window scrolls everything along it means you can't see all of the program line in total. There is no command to change screen mode and the sound commands are few (three) and somewhat basic.

One other problem - the manual is inadequate in places, there again how could it hope to cover everything in detail without being so large as to add pounds to the selling price of the whole package?

But as we say you look at the thing, it's a vast improvement on Atari ST Basic in virtually all departments, very fast and definitely worth considering.

DENNIS FRANKS

Program Fast ST Basic
Where Atari ST Price
£59.95 **Supplier** Computer Concepts, Colchester Place, Homel Harpenden, Hertfordshire AL2 8EE.

Exploring the cave of the Word Wizard

Educational software has very seldom been 100% satisfactory. Even it is very good educationally, but poorly programmed, lacking motivation and sense of fun, or very well programmed but totally useless as far as teaching is concerned.

A new product from Timeworks UK, the distributors of

various business software, for the C626 brings a fresh approach to educational software, with *Cave of the Word Wizard*, a spelling game with a built-in speech facility.

The program comes on a disk where *Sale* is a business for men program, and *Sale* is a business, additional word libraries. The game is similar in play to impossible Mission

you are in the Wizard's Cave, and you must find five crystals to escape.

There are eight levels in the cave which are reached as letters and letters, and all words there are names, mainly nouns, adjectives, adverbs, which will require a plan.

The whole thing is very well presented, and is a lot of fun to play even for a grown-up, with several libraries of words that would take care of the most advanced player. A nice touch is the facility to choose between being a little boy or a little girl.

"The whole thing is very well presented, and is a lot of fun to play even for a grown-up, with several libraries of words to take care of the advanced player"



From the Cave of the Word Wizard

as when bumped into.

As you proceed with your quest, the bonuses of your search weaken, and the words appear at regular intervals to test the spelling of a word. It is far to say that the speech is excellent, the only snag being a hint of American accent. If you spell the spoken word correctly, you are rewarded with some bonuses or just text, otherwise you lose some life. You lose if you run out of life or have encountered too many snakes.

The acid test came when young children played the game. The results speak for themselves: children will play it for hours. I would definitely class this game as one of the best educational programs ever published.

Eric Dayhams

Program Cave of the Word Wizard M6400 Commodore 64/128 Price £19.95 plus only Supplier Timeworks UK, PO Box 4803, Maidenhead, Berks SL6 1BT.

The Rolls-Royce of merger programs

No matter how good the hardware, or the operating system, or the programming language, no manufacturer has yet released the perfect programming system.

Which is good news for teachers who like to write their own software. And better news for software companies who like to sell software to those of us not up to writing our own.

Companies like Lotus, which has recently released *Minder* for the Commodore 64.

Minder is a Basic-like, somewhat like *Thompson* which often included in programming a calculator, or printed in magazines like *Popular*.

However, *Minder* is no merge games what a Rolls-Royce is to a Citroën 2CV.

What *Minder* does is to allow you to create libraries of software, and incorporate them into new programs with sophisticated data. More to the point, it's a rock-solid piece of software which tells you what's happened as it happens, whether anything went wrong, and what the state of data is after it's done all these things.

Every message is clear and helpful, and the documentation is excellent with full examples, inventory maps and so on.

Suppose you want to write a simple database (or even a complicated one). *Minder* is given into a number of routines: add a record, find a record, delete a record, sort a file, load a file, save a file, etc.

Now, suppose that you

are, you already have a sort routine, and save, load and print routines, and all sorts of other useful stuff.

Instead of writing it all over again, you simply load *Minder*, write the master routine to control all the other bits, then type in *LINK*, *SOFT*, *SAVE*, *LOAD*, *PRINT*, etc.

Now *Minder* will pull in all these routines from disc, tag them onto the end of your main module, concatenate everything, and leave the whole job done and tidy.

It also tells you how much program memory is being consumed, how much memory is available, and will intelligently look for routines that would create an "Out of Memory" error, or illegal file numbers.

There are lots of other pro-

cedures too, but what it boils down to is that *Minder* makes serious program writing a hell of a lot easier.

And that's the rub, is Shakespeare would put it. Why does that much serious programming in 64 Basic? There's also the question of price: *Minder* will cost you £29.95, which is my word is probably £14.95 less much.

So, wonderful as *Minder* undoubtedly is, I don't see much of a market for it. Hey really, but then I almost never use the Maths to drop off the laundry list.

Peter Warkley

Program Minder 64 M6400 Commodore 64 with disc Price £29.95 Supplier Intertec, 24 Derrington Road, Hove, Sussex BN3 6PN

The clone of contention

The new Amstrad machine, says John Lettice, is up and running

Amstrad has traditionally made long and larger prices of money not by raising the obvious so much as by doing it. Obviously there was big money in IBM made in the home computer market, so the CPC484 was launched. Obviously serious users wanted a complete system that they could use rather than juggle over, hence the PC1612 and 8612.

The latest move, the launch of the PC1612 series, is probably the most obvious of the lot. IBM has dominated the business market for the last five years and has sold stacks and stacks of its PCs simply by virtue of the fact that it is IBM. Other business manufacturers have followed the IBM standard, and until recently, when a lot of small companies decided they could put together IBM clones, sell them for half the price of an IBM PC, and still make a profit, the bigger companies were all doing very well for themselves.

Now the situation has been that it wasn't actually cost any more to produce a business machine than it does to

make any other machine, and that if a company were to produce a PC clone as volume it could sell it at a price low enough to make the business manufacturers lose interest in the PC standard fairly rapidly. That's what Amstrad has done with its PC, and the small companies it is carving out a large slice of the world market. On first impressions the new machines might just be neat enough and cheap enough to do it.

"The monitor is neatly designed and mounted on a tilt and swivel stand on the top plate"

The machine is simple in construction. It's smaller and lighter than the IBM PC, but the need for 5.25 inch disc drives and IBM standard expansion slots has kept its desktop footprint up to around 15 x 18 inches.

The entry-level machine had a single drive plus nonstandard monitor, and the series goes up to single drive plus 20MB

hard-disk and colour monitor. The review machine's twin floppy drives took up the whole of the front plate of the machine, and being substantial metal-shelfed frames extended back across half of the machine's base unit.

I/O ports are on the left hand side and around the back. On the left beside the various cables (going to monitor) is the keyboard plug and mouse port. I took it the latter's placing was dictated by owner board layout, but while I'm happy to report the first left-handed mouse I've met since the days of users, who are I believe right-handed, will take it.

Parallel and serial ports are at the rear with video output and power input. Like other Amstrad machines the power supply goes through the monitor (just along from there).

On most PC compatibles the expansion slots are accessed by unscrewing the casing, generally a fiddly task on a crowded desk, but the Amstrad PC uses a hatch at the rear of the top of the casing plus one on the side for access to

continued on page 18

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SOFTWARE databases

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Gumball A1 100LP Telephone: 01256 44753

Hardware Feature

the cards themselves. Both these are easily swapped in and out.

The monitor is again mostly designed, and is included as a kit and serial card that fits into a slot on the top plate inside standard 15-in. the monochrome and colour versions use the same video output, with the mono simply showing shades of grey instead of colour.

IBM's also has colour limitations on the number of colours that can be displayed at once - which is why PC games generally have odd colour combinations - but the Amstrad can handle 16 x 60 colour modes. It's also compatible with two of the modes available on IBM's EGA (Advanced Graphics Adapter), which is more than you can say for most software packages.

Screen quality is quite good, although not superb, and this leads on to a major disadvantage. Because the power supply is in the monitor you can't fit third party monitors to the machine without fitting a new power supply or running two monitors. You'd also better be sure of the monitor you want when you buy the machine, because if you upgrade from standard mono to Amstrad colour you'll want to wish a steed many changes.

The machine's keyboard is a typical IBM format, although there's a separate *Enter* key on the numeric keypad (operation being similar to the one on the PC486), and the *Alt*, *Control*, *Copy* and *Paste* (some screen keys have been moved to slightly more sensible locations).

The feel of the keys is fine, although I've beenicker on machines four or five times the price of the Amstrad. The keyboard also includes a joystick socket, but this apparently emulates the cursor keys rather than being compatible with

the standard IBM joystick, so games software will need some amendment.

If you look inside the machine you see what Amstrad really does best. The original IBM machines have operating circuit boards populated by large quantities of low-tech chips. The Amstrad on the other hand has no chip set soldered right down, and rather than being associated with a chipper for small scale, but costs more for volume production) more of the chips are surface mounted.

The board takes up about one third of the machine's base. The 6138 Ram is made up of 256K chips, while the 128K upgrade will consist of 64K chips fitted into sockets alongside. These aren't right under drive A, which would have to be removed to gain access to them. What price hard upgrades?

The 68000 processor is fairly central, with a socket for the 80487 maths coprocessor alongside it. Other major points of interest being several random chips labelled Amstrad. Developing these will have a cost a penny, but when economies of scale take over they'll make Amstrad's production costs difficult to match.

Operation

Amstrad claims that the machine is spectacularly fast, outstripping IBM but the Pentacs, a little below PC compatible machines. The claims are true, as far as running Basic programs are concerned. But don't really hold water for normal operation. One reason for a standard Windows document is marginally faster on the Amstrad than the Bondwell PC, but then again as the Amstrad has the superior 6005 chip running at 10MHz, and the Bondwell has an 80486 running at 4/10MHz, it ought to be a lot faster. The

point here is that the basic mechanics of I/O happen out performance wonderfully.

Screen handling is also an impediment to the Amstrad's speed. As far as text display is concerned it's faster than the IBM, but seems slower than the Olivetti M24, which also runs at 600K or 654K. Graphic screens are more significantly slower. The one used here, which I recently tested, involves FTD Snake Eagle software (see last week's issue for details) and time taken to run out of field with shutters engaged the Amstrad took just under three minutes, while the Olivetti turned into a brisk 45 just over two.

The Amstrad, however, is probably not faster than the IBM in terms of graphics. The spectacular difference in screen speeds never twice the speed of the M24 can substantially be ascribed to gem to Lucanov's Best 2, which is very fast indeed, it also runs under Gem, and together Gem and Best 2 took up over 670K of the machine's 6138 Ram, but that's another story.

System software

This is probably the most valuable, and convincing, area of the whole machine. The standard IBM operating system is Microsoft's MSDOS, and that is included. It is, however, also possible to use the machine with a second system, Digital Research's Dos Plus, which is also included, and finally it can still run under Gem, IBM's windowing front end for the PC. Gem isn't strictly an operating system, but has been pre-installed on a third disc which also includes Dos Plus.

Working out which you'll use is problem enough, but the confusion is heightened by various bits and pieces that



split out of the discs as you plug along.

Dos Plus allows a measure of multitasking, and the disc includes a couple of test programs, including an alarm and background printing utility, that take advantage of this. These, however, can only be accessed through Dos Plus, not through MSDOS or Gerni. Considering DR wrote both Dos Plus and Gerni I'm sure there must be a way to get the two together, but initial phone calls didn't enlighten me.

Dos Plus and Gerni, in fact, although workable independently, don't seem to add up to more than the sum of their parts. Due to Dos' front Gerni and you can't get back to Gerni Desktop. Instead you've got to put the Gerni Startup disc back into A, type `autoboot` or `gerni` (although the latter appears not to work if you've run a program in the meantime) then reload the Desktop disc. It seems to me that DR ought to be able to make the two systems a lot more integrated than this.

Compatibility

The rule to make a machine totally compatible is to make it as slow and minimalist as the original IBM. Armed to its teeth (here) done this, but the machine is still almost 100 per cent incompatible. Under 7-2-3, office, Apple II, and Open Assets all run, and I had no trouble with a fairly wide range of other programs, apart from Sargon II chess, which seemed reluctant to return to a text screen after going to a graphics display. The latter also, however, gives trouble on the Clavis, where it crashes whenever it seems to be losing.

Hardware compatibility is more difficult to judge, but the machine is likely to be able to take most IBM expansion cards, with a few exceptions.

I won't take an ISA because it can't



push out its own graphics, and some serial and parallel cards may cause problems depending on which ones of



memory they use. The advice here is to buy before you buy.

Verdict

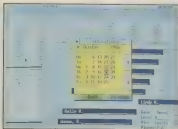
There are a few disadvantages to the Amstrad machines in absolute terms,

but at a total package of software and hardware they're well up in the front runners among PC clones. Take price into account and they have no competition there. Their competitive advantage really depends on what you want a machine for.

If you want a fast, low-comprising machine on the cutting edge of technology you'd probably look elsewhere, but the Amstrads make no pretence to being this kind of machine.

What they are is cheap, relatively fast machines that run more different software packages than any other PCs. At the moment the software is mainly business, but as the support market grows they'll inevitably take software of all kinds well into the PC.

So the message is, if you want it for business it's a good buy now (although best to wait you'll have to buy some applications software and a printer while it you are an enthusiast it may be worth your while waiting until the support starts coming through. Either way, at the price it's hard to go wrong.



All three photos show the ease of a very easy

Machine Amstrad PC1612 Supply:
at Amstrad, Brentwood House, 109
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Prices (all including VAT)

\$120 machine plus	
Single 360K drive and mono monitor	£489
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Single drive, 10Mb hard disc, colour	£900
Single drive, 20Mb hard disc, mono	£940
Single drive, 20Mb hard disc, colour	£1,116

Computer cartoons for the younger generation

Astoria is the most successful example yet to present a "cartoon-style" computer game. The graphics are faithful to the spirit of the popular Astoria comic books, and the action is a combination of arcade challenge and simple entertainment.

Astoria, like all the last English village, still needing the Roman invaders, must search the countryside for the missing pieces of the Magic Cauldron.

Without these, the village war-torn Gorath cannot leave the magic potion which gives Astoria his invulnerable

strength.

Astoria and his gnom companions Goble move through some nicely coloured landscapes of trees, villages, Roman forts and deep forests in search of the lost pot.

Movement is three-dimensional and is controlled by joystick, and some display your position, supplies, amount of magic goblin available and so on.

Goble needs a constant supply of horns so Astoria must battle with bear and there are shrewd Roman in gnomes must also be fought.

Search takes place in a



Camp, Roman from Astoria

blown-up section of screen in which the appropriate plug it can with punchp and keys, again under joystick control, it's not all even-Exploding Fort scenario.

Too much a race, the graphics are fun, and the game must be quite difficult (being I couldn't get very far with it). However, the scenario takes an annoyingly long time to draw every time Astoria and chores wander from one

scene to another and this along with the lack of complex challenges will probably mean the Astoria will appeal more to younger players.

Popular Appeal + + + + +

Chris Jenkins

Program: Astoria **Micro:** IBM 84 **Price:** £9.95 **Supplier:** Melbourne House, High Street, Hampton Wick, Kingston Upon Thames.

BMX Simulator to go platinum

The budget software market with some justification has often been compared to the budget record market - but whether that's true or not, BMX Simulator

is one of the best releases from the new budget software house, Code Masters possesses many of the virtues a good title should have. It's simple, fast, catchy and

it's cheap. In short, everything a budget game should be.

Secret to that huge sales, BMX Simulator, the one in an overhead view of various

BMX tracks, heaven in all which you race around, challenging either a friend or the computer.

You manoeuvre your bike round the track using joystick or keyboard. The controls are a doddle - left/right, pressing fire to accelerate, trigger off the fire button to brake.

The tracks are off fairly simple with quite a generous time limit, but get much more difficult as time goes on. You soon find yourself having to use the banked corners to get that extra speed.

The actual sound effect produced as you crank the pedals is a bit peculiar; a cross between a steam engine and someone clipping boards in the middle of the African Hell but the flag-clipping music between races makes up for that.

Great fun, especially as a two player game. I'd say it'll go platinum.

Popular Appeal + + + + +

John Cook

Program: BMX Simulator **Micro:** Commodore 64 **Price:** £1.99 **Supplier:** Code Masters.



The much too silent service

Ping! Ping! The sonar gave its monotonous warning of the destroyers' interminable advance overhead on a nauseatingly clear afternoon in 1944.

The three had lasted three hours, had seen our deck gun blown to pieces, four torpedo tubes submersed, engines and hull damaged. Speaking of the hull, that cracked ominously as we hovered perilously close to our maximum test depth.

The fuel boom of the depth charges exploding illuminated it, but gave up the terrifying shock from end to

end from the shock waves. With a scoured level water, few from constrictions and plates buckled and collapsed beneath the awful pressure of being 400 feet underwater. The Pacific Time is surface. Following the emergency lights, we dove to our way upwards.

Unfortunately the cruise was warning and no sooner had the conning tower emerged spilling into the sunlight, than it was blown off.

Thankfully this was the USS PCMV undergoing no trials and manoeuvres in Silver



Service, the ST conversion, from Micro Probe, so it lived to fight another day.

Graphically, this version scores over the C64 original, all the screens, bar the maps, being much clearer, more substantially drawn. The gameplay is exactly the same but this has a couple of extra measures to take your information on.

All is not perfect though. For instance, when on the surface it's impossible to quickly scan around, and if you're looking around, since you can't rotate decks again you'll find the periscope has

moved to the direction you're looked in from the tower.

Despite some small compromise with non-existent sound effects, shells and damage from depth charged boats, *Silent Service* is a pretty good game even if it's not quite *Sea Wolf*.

Popular Appeal ★★

Duncan Evans



Control the silent service screens from the silent service

Program Silent Service
Micro Probe ST Prime
£24.95 Supplian US
664, Line 2nd, Birmingham
Way, Holford, Birmingham
B6 3AE

Droids and robots, arcade and adventure from Anglosoft for your Commodore

It's always good to see a new games software house emerging. Anglosoft isn't a new name, but previous releases have been in the MSX and C64 realms here.

Greys is a nicely-produced arcade adventure with elements of Hereson's *Renegade* and *Spax's* *Impossible Mission*. The graphics are big and colourful and the programming is pleasantly fast and smooth.

You control a space commando attempting to destroy a major interstellar. The screen shows two levels of

deck, plus your score, lives remaining and energy level. Energy pods allow you to replenish lost power.

Scattered around the decks are escalators to allow you to change level, ladders to the next deck and levelling riding on to.

Guard robots have to be tapped or shaken, and once they're in plaintext you can access a terminal, enter the correct code and shut down that deck.

Telecomms enable you to jump from one deck to another, though it can be a shock to find that the guard



robots get shaken and were visible on later decks.

Parts of the deck, back side view and top, can be called up from the terminal, and there's a challenging little robot test involving moving an indicator through moving barriers in order to shut down each deck.

Good fun though not hugely original - worth checking out.

If you want to encourage a worthy new games software house.

Popular Appeal ★★

Chris Jenkins

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An adventurer's guide to the Hitchhiker's Guide to the Galaxy

The omnipotent Tony Bridge brings you the secret of the Babel fish and more...

Was I looked across weeks ago at the problem of the intelligence, scooping door in Hitchhiker's Guide to the Galaxy, but there is an earlier puzzle that gets everyone staring their hair out: the getting of the Babel fish.

If you haven't solved this one yet, then you may not know that you need the fish to be able to understand what all that garbage is coming out the mercern (although you will know, if you have consulted the guide, that the Babel fish will allow you to hear any alien language in perfect English).

As you'll know by examining the disappearing machine, there is a source of Babel fish in the wagon held by the way, just getting to see in the hold is quite a trick — when you first find yourself in this predicament, just about any old rubbish and watch the disappearing very carefully, particularly sparing the rubbish of scenes unavailable to you, it's not the only time that this trick works, so keep it in mind for future use!

"Infocorn and Douglas Adams are more devious than to allow you a prized object as easily as merely pushing a button! The Babel fish comes out . . . only to disappear from view through a tiny hole in the opposite wall!"

Back to the fish, and you'll naturally press the button on the disappearing machine. But Infocorn and Douglas Adams are more devious than to allow you a prized object as easily as merely pushing a button! The fish comes out all right, but sails across the room at knee level to disappear from view through a tiny hole in the opposite wall. Oh dear.

But there is a hook just above the hole, so maybe you could hang something on that hook, thus covering the hole. Ford's towel doesn't, unfortunately, want to stay on the hook, so something else must be tried. At best the towel draping

yourself seems at hand!

So once the hole is covered up, try again. The Babel fish won't going to give up that easily, however — although it slides down the sleeve of the gown, it then falls to the floor, to disappear through a previously unseen door. You'll find that the door is quite large enough to cover the drain pipe in right, the dressing gown isn't.

But, but . . . As the fish lies there, a tiny cleaning robot whizzes across the floor and, passing only to grab the fish, disappears through a panel in another wall. Is the fish ever going to give up?

Applying what we've learned so far, we can safely assume that this panel can be covered up too. What else can we use? How about Ford's towel? He's miles away, so he won't mind if you prop it against the panel, and this works fine, except that now, wouldn't you just know it, a second robot goes in to graciously catch the fish as it bounces off the towel!



the Hitchhiker's Guide . . .

Something else is called for here — if you read that last description about the second robot, there's a germ of an idea there. Now, you did bring the junk mail with you, didn't you? I hope so, because that is what we need now — just place it on top of the towel, press the button one more time, and watch what happens.

At last the Babel fish is yours, but what a marvelous problem, and what a marvelous looking for the adventure when finally solved. This kind of thing is what makes Infocorn (and) head and shoulders above other software houses. Meanwhile, however, don't think that the vagabond told has given up all its secrets. . . .

While we're in space, let's take a look at *Hitchhiker's* and the peculiar problems

that the game from Adventures Soft UK has been posing to players. As you may have gathered from my recent Columns, I find this story quite a refreshing program, and promising for the future of this company.

Although a lot of exploring may be done in the game, the first priority is to get the access card from the galactic travel agent. This is accomplished by talking to it, when the card will be revealed along with the platgeous air-pod and two tickets to Trains.

You'll know from the facts on the cassette that you must beware of showing weapons to the police or customs. A good way of hiding such things as the laser sword is to use the tube. Just drop the object into Wade and when needed, get object from Wade incidentally, the tube will also allow you to share more objects at one time than would be possible otherwise.

To get through the customs, ensure that all weapons and doubtful objects like the alloy amp etc., are stored in the tin tube. Once you reach the officers (which may take some doing, I can tell you), you'll need the card at last. Now you'll come across a pair of angry Americans who aren't too impressed that you seem to have passed your stupid space-ship right in their parking space! Giving the ticket to them will get rid of them and will also yield up a new object for you!

Let's finish with a bit more Infocorn help. *Witchhiker's* is designed by the authors as being an adventure for beginners, but as you'll imagine, that doesn't mean that it is in any way a walkover! I haven't got space to go into great detail, but a couple of problems might be giving you a headache if you're just started.

First, don't bother trying to get the chocolate in the police station. Although it is the bonus for a spell, you won't actually need the chocolate during the course of the game. Next, don't get caught by the loose panel, or you'll land up in jail — the way to avoid them is to simply run in the opposite direction.

You will need to get into the jail at a later stage, but this is accomplished by opening the tree stump on Lookout Hill. Once in the jail, you must get the blanket which you must then use to keep the guard asleep. Finally, what is the dream, lost under the seat for something sometimes!

Dungeon Adventure on Spectrum. A severe lack of progress. Any help at all would be appreciated. How do I use those sorting collars? Are there any other light sources apart from the lanterns burning wood, and where are they - please? Simon Arnes, 22 Albion Road, Tonbridge, Kent TN11 2BR.

The Fantastic Four, part one on BBC B. How does the thing pass the fire in the cavern, and how does the torch attack the brutes? Paul Tang, 21 Main Street, Brimston, Barton-on-Treas, Souths DB14 2BR.

Robin of Sherwood on Amstrad CPC 464. I have got one longstone, but I don't know how to get the others. Gavin Lennors, 10 Sarncliffe Road, Covent, Co. Devon, Ex.

Hangtaste on Spectrum. How do you get a job? What do you do with the castle card? What do you do with the little bracket? Martin Chapple, 12 Church-Hill Street, Ambley, Leeds LS12 2JN.

Heroes of Ram on C64. I can't get past the last. Andrew Langer, 18 Anna Close, Christchurch, Dorset BH23 2MY.

Bored of the Rings on Spectrum. How do I get the debugger that is used to set the scrolling? After climbing down the

rope, how do I get back? Simon Arnes, 22 Albion Road, Tonbridge, Kent TN11 2BR.

Crystal Quest on Spectrum. How do I fix the engine mechanism and move the oil on several dials? What can I do after getting kidnapped? Tony Fox, 15 Spence Street, Mabley, Maresfield LD2 4LN (0543-603 6862).

Knight Time on MSX. How do I get my photo on to the bit card, having got camera, film, glass, etc? Matthew Palmer, 21 Rosemont Close, Maidenhead, Berkshire SL6 3DR.

The Hobbit on Spectrum. After carrying Gand all the dragon's sleeping place, what should he do to kill the dragon? How does he kill the dragon with

how and arrow? I would be obliged if anyone can come forward with a solution to this problem. D M Preece, c/o John Harris Asset, PO Box 214, Maccles, Salsburgh of Devon.

The Baggins on Spectrum. How do I get out of the tunnel-like hole? J Heston, 6 Stirlinghouse Avenue, South Hill Park, Lifford, Midlesex EN1 2DA.

Questprobe: Torch/Thing on Spectrum. I can't get thing out of the target, or get into Doctor Quinn's castle. Nigel Philip May, 73 Fiddes Road, Llanishan, Cardiff, S Glamorgan, Wales CF4 8JX.

Twice Kingdom Valley on Spectrum. How do I kill the witch in the castle of the dwarf king? Simon Arnes, 22 Albion Road, Tonbridge, Kent TN11 2BR.

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Tell us the trouble, explaining your problem.

Adventure Problem

on (please)

Name Address

then send it to us, and a fellow adventurer may be able to help.

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Mercenary's Second City — the final solution

Tony Kettle begins the first of a series of articles with maps on solving Novagen's classic

This week we start a special deal for *Mercenary* fans — the complete solution and map to the second city, sent in by Christopher Heuser, who wrote such an excellent piece on the first game.

Second City is released as being "the last city set that ever reached the software stores" and it is a testament to the lasting quality of the original game that it sells so popular and in no way dated. The forthcoming *Armageddon* *Mercenary* releases will be the last one but hopefully these games will have provided for the second city release. The available *ST* edition will be a compendium of both cities together with a *Targ* survival kit of maps and hints. This compendium will also be ready in 8-bit Atari, Commodore 64 and Macintosh versions.

On with the game. Christopher writes, "The second city is much harder than the original, there are all kinds of traps for you. New features include a chapel room, accessible through any triangular door. There's only one problem — no key!

There are particularly dark rooms which even a phasor cannot light up. These appear orange.

A lot of rooms appear dark but you could use them with a phasor emitter, but guess what, it's hard to get to the emitter and seemingly impossible to remove it. It lies in a room accessible only by a one-way transporter room. Once in the transporter control for used again. Are you stuck? The room features two other doors, one of which has a shield and crosshairs over it if you go through that you fall out of the colony craft but fear not, that is what you have to do.

First you need the angular which will let you pick up your ship and when you fall to the ground you simply drop it and off you go again.

An alternative is to shoot a flag to the ground and drop all your objects. Press Ctrl+Q to quit and you get a new flag with all objects and nearby.

"The abundance of perforated rooms means that, unlike before, you can't avoid them to get through. In one of them a key is hidden.

"Another in the larger complex 3-04, features six doors, each a different shape. The following tips have been of help here.

In a 16 room if you face a wall and turn about twenty degrees to one side, then

move over to the wall, you can force your way through it until you hit a door, which you will go through if it isn't locked. After practicing, you'll find any invisible doors if you do the same in a dark room. A wall that has several doors along it is unfortunately a difficult challenge and you are never sure when you have reached the end of the wall so

going right, round a dark corner is tricky.

Now all traps are marked by a skull and crossbones — you just have to try each door to find.

There is a room where only the lines of the floor are visible, which is one of the three prisons."

More on *Mercenary: Second City* and more maps next week.

1 - DIFFICULT

2 - VERY TIME DEMAND

3 - COMPLEX, REPEATED

4 - MEDIUM

5 - WEAPON, REPEATED

6 - WEAPON (TRAP)

7 - CLIFF

8 - HYPERBOLIC

9 - KEY

10 - KEY

11 - KEY

12 - KEY

13 - KEY

14 - KEY

15 - KEY

16 - KEY

17 - KEY

18 - KEY

19 - KEY

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100 - KEY

MERCENARY: THE SECOND CITY

ROOMS

1 - 100

101 - 200

201 - 300

301 - 400

401 - 500

501 - 600

601 - 700

701 - 800

801 - 900

901 - 1000

1001 - 1100

1101 - 1200

1201 - 1300

1301 - 1400

1401 - 1500

1501 - 1600

1601 - 1700

1701 - 1800

1801 - 1900

1901 - 2000

2001 - 2100

2101 - 2200

2201 - 2300

2301 - 2400

2401 - 2500

2501 - 2600

2601 - 2700

2701 - 2800

2801 - 2900

2901 - 3000

3001 - 3100

3101 - 3200

3201 - 3300

3301 - 3400

3401 - 3500

3501 - 3600

3601 - 3700

3701 - 3800

3801 - 3900

3901 - 4000

4001 - 4100

4101 - 4200

4201 - 4300

4301 - 4400

4401 - 4500

4501 - 4600

4601 - 4700

4701 - 4800

4801 - 4900

4901 - 5000

5001 - 5100

5101 - 5200

5201 - 5300

5301 - 5400

5401 - 5500

5501 - 5600

5601 - 5700

5701 - 5800

5801 - 5900

5901 - 6000

6001 - 6100

6101 - 6200

6201 - 6300

6301 - 6400

6401 - 6500

6501 - 6600

6601 - 6700

6701 - 6800

6801 - 6900

6901 - 7000

7001 - 7100

7101 - 7200

7201 - 7300

7301 - 7400

7401 - 7500

7501 - 7600

7601 - 7700

7701 - 7800

7801 - 7900

7901 - 8000

8001 - 8100

8101 - 8200

8201 - 8300

8301 - 8400

8401 - 8500

8501 - 8600

8601 - 8700

8701 - 8800

8801 - 8900

8901 - 9000

9001 - 9100

9101 - 9200

9201 - 9300

9301 - 9400

9401 - 9500

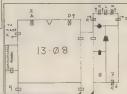
9501 - 9600

9601 - 9700

9701 - 9800

9801 - 9900

9901 - 10000



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Programming: BBC

Pager

The 4000 Footprints

This program lists the names of all the items present in the database in order of basket number. It also gives the item number, describing service and language every game, and allows any item to be switched off by putting zero into the relevant pageid item space table at 8/24/1.

Note that pressing **Insert** will turn all the letters back to small.

[illegible]

Programming: Spectrum 128

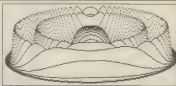
Wobbling Jellies

Dr. M. D. L. Langenhove

The following programs for the 1990 Symposium will probably last and provide excellent sessions:

This is done by storing the screen display as frames in the film disc and then using 'load' to replay them as necessary.

If the program is Run it will generate the plots and save them to Ram before giving the option of saving the figures to cassette or microdrive. However, since the function used is a cassette one the



disagreements will take two hours to be resolved.

This idea of using the flame disc to warm clean fibers is can be applied in various ways to create fast animations.

The above duplication is an example of the "wordy get to". The listing for that program begins on the following page.

```

10 REM
20 REM Set up initial variables and loc
ps.
30 REM
40 LET c=0
50 FOR t = 0.1 TO 7 STEP (7/13)
60 REM
70 REM Function to be plotted.
80 REM
90 DEF FN a(x,y)=t*EXP (2*COS ((x+y)*
y)*.001))
100 FOR x=0 TO 127
110 LET y=50R (16129-x*x)
120 LET m=-1e9
130 FOR z=-y TO y STEP 4
140 LET k=FN a(x,z)
150 LET p=k/z/4+88
160 IF p<m THEN GO TO 190
170 LET m=p
180 PLOT 128*x,p: PLOT 128-x,p
190 NEXT z
200 NEXT x
210 REM
220 REM Save screen to ram disc.
230 REM
240 SAVE 1CHR# (65+c)CODE 16384,6144
250 CLS
260 LET c=c+1
270 NEXT h
280 GO TO 630
290 REM
300 REM Display sequence of 12 frames.

```

```

310 REM
320 CLS
330 FOR f = 65 TO 76
340 LOAD 1CHR# (f)CODE
350 NEXT f
360 FOR f = 75 TO 66 STEP -1
370 LOAD 1CHR# (f)CODE
380 NEXT f
390 GO TO 330
400 REM
410 REM Routine to load frames from ram
disc and save to microdrive.
420 REM
430 CLS : PRINT AT 5,3:"Insert a cartri
dge with":AT 7,3:"at least 90K of free s
pace."
440 PRINT AT 9,3:"Press any key when re
ady"
450 PAUSE 0
460 FOR f = 65 TO 76
470 LOAD 1CHR# (f)CODE
480 SAVE *m":1:CHR# (f)CODE 16384,6144
490 NEXT f
500 SAVE *m":1:"function" LINE 550
510 GO TO 290
520 REM
530 REM Load frames from microdrive and
save to ram disc.
540 REM
550 FOR f = 65 TO 76
560 LOAD *m":1:CHR# (f)CODE
570 SAVE 1CHR# (f)CODE 16384,6144

```

```

580 NEXT f
590 GO TO 290
600 REM
610 REM Frames now generated prompt for
storage media.
620 REM
630 PRINT AT 5,3:"Save to (M)icrodrive,
"
640 PRINT AT 7,3:" or (T)ape."
650 INPUT a$
660 IF a$="m" OR a$="M" THEN GO TO 400
670 IF a$("<"t" AND a$(">"T" THEN GO TO
650
680 REM
690 REM save to tape
700 REM
710 SAVE "function" LINE 800
720 FOR f = 65 TO 76
730 LOAD 1CHR# (f)CODE
740 SAVE CHR# (f)CODE 16384,6144
750 NEXT f
760 GO TO 290
770 REM
780 REM load frames from tape and save
to ram disc.
790 REM
800 FOR f = 65 TO 76
810 LOAD CHR# (f)CODE
820 SAVE 1CHR# (f)CODE 16384,6144
830 NEXT f
840 GO TO 290

```

Programming: QL

Multi Sided Shapes

by Stephen Salmon

This program runs on a non-expanded QL using a monitor, although line 180 can be changed to

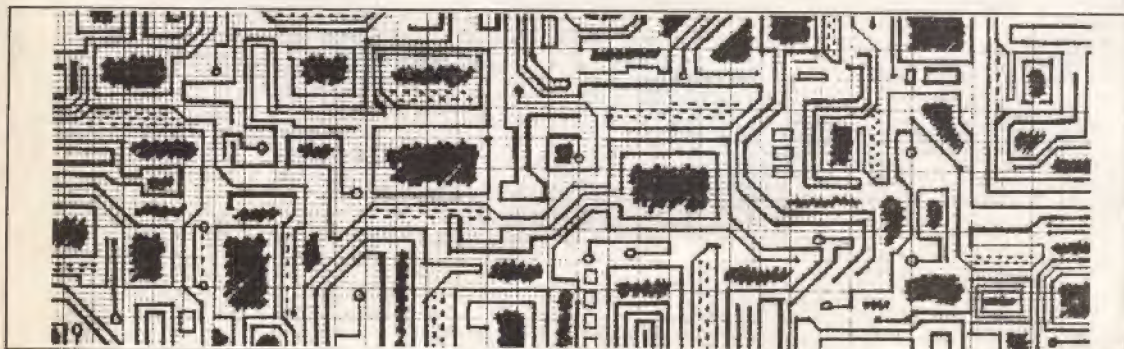
Mode 8 to suit a TV.

When the program is first run an opening demonstration screen is drawn showing the three options available. These are displayed in the menu in the bottom right hand corner of the screen.

Multi Sided Shapes is made up of three procedures which can be incorporated into your own programs. These are *Shapes*, *Prisms* and *Plains*.

Shapes will draw polygons, the pattern

of which can be altered by changing the value of *Step* in line 1530. The *Prisms* procedure draws them with both ends open. The patterns can be altered by introducing a *Step* command into line 1770. The pattern produced by the *Plains* procedure can also be altered by changing the *Step* value in line 1990. The positions of the displays can be altered by using the *X-Centre* and *Y-Centre* values.




```

170 WINDOW#0,512,10,0,246
180 MODE 4
190 PAPER 254
200 CLS
210 LET LIMIT=50
220 LET NUMBER_OF_SIDES = 5
230 WINDOW#1,256,123,0,0
240 MULTI_SIDED_SHAPES
250 CSIZE 2,0
260 CURSOR #1,0,80
270 PRINT "SHAPES"
280 CURSOR #1,0,0
290 PRINT "|||"
300 WINDOW#1,256,123,256,0
310 LIMIT = 40
320 DEPTH = 70
330 NUMBER_OF_SIDES=7
340 PRISM
350 INK 0
360 PRINT "|||"
370 CURSOR #1,0,85
380 PRINT "PRISMS"
390 WINDOW #1,256,123,0,123
400 NUMBER_OF_PLAINS = 4
410 PLAINS
420 INK 0
430 CURSOR #1,0,0
440 PRINT "|||"
450 CURSOR #1,0,90
460 PRINT "PLAINS"
470 MENU
510 DEFINE PROCEDURE MENU
520 WINDOW #1,256,123,256,123
540 CLS:PAPER #1,7,2:CLS
560 INK #1,0
570 CSIZE 3,1
580 PRINT "MENU"
590 CSIZE 2,0
600 PRINT
610 PRINT* (1) SHAPES*
620 PRINT* (2) PRISMS*
630 PRINT* (3) PLAINS*
640 PRINT
650 UNDER 1
660 PRINT* PRESS KEY FOR PROGRAM ..... =
670 UNDER 0
680 IF INKEY#="1" THEN MULTIN
690 IF INKEY#="2" THEN PRISMIN
700 IF INKEY#="3" THEN PLAININ
710 GO TO 680
720 END DEFINE MENU
740 DEFINE PROCEDURE MULTIN
750 CLS
760 CSIZE 3,1
770 PRINT "SHAPES"
780 PRINT
790 CSIZE 2,0
800 PRINT* INPUT THE NUMBER OF
SIDES YOU WISH YOUR SHAPE TO HAVE*
805 PRINT* IN THE RANGE 3 TO 20*
810 INPUT NUMBER_OF_SIDES
820 IF NUMBER_OF_SIDES<3 OR NUMBER_OF_SIDES>20

```

```

THEN GO TO 810
830 PRINT "INPUT THE SIZE 10-50"
840 INPUT LIMIT
850 IF LIMIT<10 OR LIMIT>50 THEN GO TO 840
860 CLS
870 WINDOW#1,512,246,0,0
880 MULTI_SIDED_SHAPES
890 CSIZE 3,1
900 CURSOR #1,0,0
910 INK 0
920 PRINT NUMBER_OF_SIDES* SIDES*
930 CURSOR#1,0,180
940 CSIZE 2,1
950 PRINT*PRESS ANY KEY*
960 PAUSE 99999
970 MENU
980 END DEFINE MULTIN
1000 DEFINE PROCEDURE PRISMIN
1020 CLS:INK 0
1030 CSIZE 3,1
1040 PRINT* PRISMS*
1050 CSIZE 2,0
1060 PRINT
1070 PRINT*INPUT THE NUMBER OF*
1075 PRINT*SIDES YOU WANT TO YOUR OPEN ENDED*
1078 PRINT*PRISM 4-15*
1080 INPUT NUMBER_OF_SIDES
1090 IF NUMBER_OF_SIDES<4 OR NUMBER_OF_SIDES>15
THEN GO TO 1080
1100 PRINT "INPUT DEPTH 10-90"
1110 INPUT DEPTH
1120 IF DEPTH<10 OR DEPTH>90 THEN GO TO 1110
1130 PRINT "INPUT SIZE 10-50"
1140 INPUT LIMIT
1150 IF LIMIT<10 OR LIMIT>50 THEN GO TO 1140
1170 CLS:WINDOW#1,512,246,0,0
1180 PRISM
1190 CSIZE 3,0
1200 CURSOR #1,0,215
1210 INK 0
1220 PRINT "PRESS ANY KEY"
1230 PAUSE 99999
1240 MENU
1250 END DEFINE PRISMIN
1270 DEFINE PROCEDURE PLAININ
1290 CLS:CSIZE 3,1
1300 PRINT* PLAINS*
1310 PRINT
1320 CSIZE 2,0
1330 PRINT*INPUT THE THE NUMBER OF PLAINS YOU*
1336 PRINT*WANT ON THE SCREEN IN THE RANGE 3-25*
1340 INPUT NUMBER_OF_PLAINS
1350 IF NUMBER_OF_PLAINS<3 OR NUMBER_OF_
PLAINS>25 THEN GO TO 1340
1370 CLS:WINDOW#1,512,246,0,0
1380 PLAINS
1390 INK 0
1400 CURSOR#1,0,0
1410 CSIZE 3,1
1420 PRINT*PRESS ANY KEY*
1430 PAUSE 99999
1440 MENU

```

```

1450 END DEFINE PLAININ
1490 DEFINE PROCEDURE MULTI_SIDED_SHAPES
1510 CLS:BORDER 15,50
1520 PAPER 254
1530 FOR OUTLINE = 0 TO LIMIT STEP .5
1540 X_CENTRE = 95
1550 Y_CENTRE = 50
1560 HORIZONTAL = X_CENTRE + OUTLINE
1570 VERTICAL = Y_CENTRE
1580 FOR P=0 TO 361 STEP 360/NUMBER_OF_SIDES
1590 LET HORIZONTAL_2 = X_CENTRE + OUTLINE * COS
(P*PI/180)
1600 LET VERTICAL_2 = Y_CENTRE + OUTLINE * SIN
(P*PI/180)
1610 INK P/NUMBER_OF_SIDES
1620 LINE HORIZONTAL,VERTICAL TO HORIZONTAL_2,
VERTICAL_2
1630 HORIZONTAL = HORIZONTAL_2
1640 VERTICAL = VERTICAL_2
1650 END FOR P
1660 END FOR OUTLINE
1670 END DEFINE MULTI_SIDED_SHAPES
1710 DEFINE PROCEDURE PRISM
1720 Y_CENTRE = 50
1730 X_CENTRE = 110
1750 CLS:PAPER 254
1760 BORDER #1,10,55
1770 FOR PRISM_LOOP = 1 TO DEPTH
1780 HORIZONTAL=X_CENTRE-LIMIT
1790 VERTICAL=Y_CENTRE
1800 FOR P=0 TO 361 STEP 360/NUMBER_OF_SIDES
1810 HORIZONTAL_2 = X_CENTRE - LIMIT
* COS(P*PI / 180)
1820 VERTICAL_2 = Y_CENTRE + LIMIT * SIN(P*PI / 180)
1830 INK P/NUMBER_OF_SIDES
1840 LINE HORIZONTAL,VERTICAL TO HORIZONTAL_2,
VERTICAL_2
1850 HORIZONTAL = HORIZONTAL_2
1860 VERTICAL = VERTICAL_2
1870 END FOR P
1880 LET X_CENTRE = X_CENTRE -.5
1890 LET Y_CENTRE = Y_CENTRE
1900 END FOR PRISM_LOOP
1910 END DEFINE PRISM
1950 DEFINE PROCEDURE PLAINS
1960 PAPER 254
1970 BORDER #1,10,33
1990 CLS:FOR a=30 TO 90 STEP .75
2000 LET X_CENTRE=130:LET Y_CENTRE=90
2010 LET HORIZONTAL=X_CENTRE - a
2020 LET VERTICAL = Y_CENTRE
2030 FOR B=0 TO 361 STEP 360/(NUMBER_OF_PLAINS-1)
2040 LET HORIZONTAL_2=X_CENTRE - a*COS (B*PI/180)
2050 LET VERTICAL_2=Y_CENTRE + a*SIN (B*PI/180)
2060 INK B/NUMBER_OF_PLAINS/2
2070 LINE HORIZONTAL,VERTICAL TO HORIZONTAL_2 -
HORIZONTAL,VERTICAL_2 - VERTICAL
2080 LET HORIZONTAL = HORIZONTAL_2
2090 LET VERTICAL = VERTICAL_2
2110 NEXT B:NEXT a
2120 END DEFINE PLAINS
2140 SAVE MDV_BOOT

```


Programming: Amstrad 464

[illegible]

Programming: C64

Minz

The object of Mine is to destroy the targets in any locations where possible, or otherwise, to reduce

balloon and helicopter. Also to be avoided are the states which appear at the start of a screen before loading levels. Full instructions are given in the comments.

The testing is quite long and will be postponed over these weeks, so if you don't want to type it in send £2 to the Smith, 73 Waterfield Street, East Ham, London E8 1NF for a copy on request.

```

1000 REM ***** BASIC *****
1010 REM ***** C64 *****
1020 REM ***** BASIC *****
1030 REM ***** C64 *****
1040 REM ***** BASIC *****
1050 REM ***** C64 *****
1060 REM ***** BASIC *****
1070 REM ***** C64 *****
1080 REM ***** BASIC *****
1090 REM ***** C64 *****
1100 REM ***** BASIC *****
1110 REM ***** C64 *****
1120 REM ***** BASIC *****
1130 REM ***** C64 *****
1140 REM ***** BASIC *****
1150 REM ***** C64 *****
1160 REM ***** BASIC *****
1170 REM ***** C64 *****
1180 REM ***** BASIC *****
1190 REM ***** C64 *****
1200 REM ***** BASIC *****
1210 REM ***** C64 *****
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1240 REM ***** BASIC *****
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1260 REM ***** BASIC *****
1270 REM ***** C64 *****
1280 REM ***** BASIC *****
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1360 REM ***** BASIC *****
1370 REM ***** C64 *****
1380 REM ***** BASIC *****
1390 REM ***** C64 *****
1400 REM ***** BASIC *****
1410 REM ***** C64 *****
1420 REM ***** BASIC *****
1430 REM ***** C64 *****
1440 REM ***** BASIC *****
1450 REM ***** C64 *****
1460 REM ***** BASIC *****
1470 REM ***** C64 *****
1480 REM ***** BASIC *****
1490 REM ***** C64 *****
1500 REM ***** BASIC *****
1510 REM ***** C64 *****
1520 REM ***** BASIC *****
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1540 REM ***** BASIC *****
1550 REM ***** C64 *****
1560 REM ***** BASIC *****
1570 REM ***** C64 *****
1580 REM ***** BASIC *****
1590 REM ***** C64 *****
1600 REM ***** BASIC *****
1610 REM ***** C64 *****
1620 REM ***** BASIC *****
1630 REM ***** C64 *****
1640 REM ***** BASIC *****
1650 REM ***** C64 *****
1660 REM ***** BASIC *****
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1680 REM ***** BASIC *****
1690 REM ***** C64 *****
1700 REM ***** BASIC *****
1710 REM ***** C64 *****
1720 REM ***** BASIC *****
1730 REM ***** C64 *****
1740 REM ***** BASIC *****
1750 REM ***** C64 *****
1760 REM ***** BASIC *****
1770 REM ***** C64 *****
1780 REM ***** BASIC *****
1790 REM ***** C64 *****
1800 REM ***** BASIC *****
1810 REM ***** C64 *****
1820 REM ***** BASIC *****
1830 REM ***** C64 *****
1840 REM ***** BASIC *****
1850 REM ***** C64 *****
1860 REM ***** BASIC *****
1870 REM ***** C64 *****
1880 REM ***** BASIC *****
1890 REM ***** C64 *****
1900 REM ***** BASIC *****
1910 REM ***** C64 *****
1920 REM ***** BASIC *****
1930 REM ***** C64 *****
1940 REM ***** BASIC *****
1950 REM ***** C64 *****
1960 REM ***** BASIC *****
1970 REM ***** C64 *****
1980 REM ***** BASIC *****
1990 REM ***** C64 *****
2000 REM ***** BASIC *****

```

continued on page 32

VDU

How to Obtain Service

This program, for any Amstrad CPC, provides a MDU command like on the BBC micro. The syntax is `MDU[address]`. Up to 64 operations can be passed.

For example, *AMERICAN* 1.5.2.55 runs
 Mode 1, Run 2 and prints 'A'.

```

100  SET  WDI  TO  WINDOW  (CONT)
101  NAME  :=  WINDOW  (NAME)
102  FOR  WINDOW  TO  WINDOW
103  ADD  (NAME)  TO  WINDOW
104  ADD  (NAME)  TO  WINDOW  (NAME)

```

[illegible]

Money Maker

REVIEWS

This program for any Spectrum will generate money, if 10 notes to be specified. Just type it in, and it can be easily converted to other machines, run the program and you'll see what I mean. A little what's in your pot and you could again be rolling in the bonus notes.

```

10 REM Memory Maker
20 CLS : PRINT DIM 4, PAPER 21 : M
array Maker Utility
30 PRINT : FLASH 1: FOR f=1 TO 85
40 READ b
50 PRINT CHR$(b);
60 NEXT f
70 DATA 97,104,121,32,110,111,118,32,1
12,101,110,100,32,105,110,32,121,111,117
,114,32
80 DATA 115,104,111,114,116,32,112,114
,111,103,114,97,109,118,32,100,111,104,3
2,64,121,110,101,118,32,97,110,109,32,90
,105,101,90
90 DATA 101,116,32,97,110,100,32,101,9
7,114,110,32,121,112,117,114,115,101,106
,102,32,97,32,110,101,110,110,101,114,32
67

```

Status

Dr. Alexander Smith

After typing in and correcting any errors, this program for the Amstrad CPC should be called for execution. **OK**

These five digit numbers are now protected. They are as follows:

1. Length of the Basic program in memory.
2. Length of the variable area.
3. Free memory.

[illegible]

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In the lap of the Gods

David Watlin has news of multi-user game Gods, with a special offer for Popular readers

A while back we looked at a couple of 88-micro-user games, including Gods. This week we have a special God offer for readers of this column, so it's time to look at the game in more detail. There is a personal bias in this, I must admit. Gods is my favourite multi-player adventure, despite its puny sales fee of £20.

Accessing Gods

Gods can be accessed by any 386/387 or 1280/170 terminal, although I find that 1280/170 works a lot better than 386/387. The number is 01-5994-8149 and the protocol is-tell, no party and one step for standard 88 protocol.

Free demo mode

To see if you like Gods (and you probably will), you can log on as a guest. From the first menu you go to the Play option and enter guest when asked to, and then follow any onscreen instructions.

Most of the other people I have met on Gods are friendly and generally passable. There is, though, one thing that can turn even the most friendly people to murder, that is an annoying guest.

Guests have a habit of trying to kill other people, so there are plenty of weapons about for the wicked people out there to find and kill with, but most other players are peaceful and don't kill unless forced to.

Other players are also helpful to the beginner. When I first started, many others offered to give me guided tours of the area, initially free, to help me. They also offered tips when you are stuck (which is useful). It was the other players who taught me about 'valuing' items (see below). Offering items to the Gods (also see below), performing the 'hoar' in God's temple and other things that had at first baffled me.

Treasure

When you find treasure, you can value it so find what it is worth. When you type Value Itemed, a little character appears, looks at it and tells you its worth in bank-ratio points and gold.

Treasure can be offered to a God in his temple. Having asked the guard to take you there, you can type offer thing to

give the item to the God. What happens next depends on the value of the item. If when valuing it you were told that the Gods would give you something then the Gods will be doing with you it. However, the item is valued above zero, you will be given its value in magic points (called magical reserve).

The more items you offer, the better your rank will be. You start as Gnom, proceed to Sub-God-The-Gods, then to Second Class Citizen, eventually, through Monk and Priest, to finally become a God. There are many ranks, and the above are just examples. At the time of writing I am a Second Class Citizen, under the penname of Communicator.

The 'valued' mentioned above is a method of getting a list of points, even though you may not have much treasure yourself. To find out more you'll have to play Gods.

All good adventures have a maze, and Gods is no exception. In Gods the maze is the Kashah, and it's easy as anything to get lost in it. If you do get lost in the Kashah, then keep typing God. Also there is a forest, where you can get lost, but it is quite a bit easier to find your way out of the forest than the Kashah.

At present, there are only two spells available, Summon and Summon. They do exactly what you would expect. When you type when an object/person is Summoned bring a person to you. More spells are on their way. Other commands include Fight, Use, Kill, Get, Make, Offer, Miss, Map, Fly, Say, About, Help, About, Ring, End, Guard, Out and many, many, more. The command Who will tell you who is currently playing the game.

The Bulletin Board

Running alongside Gods is a multi-user Bulletin Board. At present this is a very crude messaging system, where you can leave other players' messages, but Gods is now running on a new computer and an upgraded BB is promised.

Gods - the background

Gods is run by three people, Tiger, Major McMillan and The Magee and Lucy. They have LOTUS (lap Of The Gods) Tiger, who wrote the software, built the hardware, etc, does most of the running.

Until recently, Gods was running on a

68000 Xerox machine, now it has been upgraded to Ultrix, on a 'home-made' computer, consisting of bought-in boards. The Gods software (and hardware) is available for sale to budding BAUC types, but don't expect it to be cheap! Also LOTUS will write custom games to your own requirements and sell a multi-user Bulletin Board system.

Any changes in Gods are likely to change soon and as hourly playing charge is implemented when the game is finished, so you'd better join soon and make the most of the 'free' access time available.

Joining Gods

To register you send your £20 to LOTUS with some information about your computer and modem. What you must do to register can be found out by Typing What the first menu.

Special Offer

As a reader of Popular Computing Weekly's Communicator, feature, you are entitled to a discount of 05 when joining Gods. The cost for a Popular reader to join Gods is only £15 (95 including VAT).

You have three months to apply to join Gods at this special discount price. After then, you will be required to pay the full price.

To be entitled to this offer, you must quote the following on application:

- 1) My Telecom Gold member number (quoted regularly on this page).
- 2) The reference 05/PCW/001
- 3) The volume and issue numbers of this copy of the magazine.

You must include with your £15, your name, address, signature, date and make/model of computer and modem. You then should leave a message on the BB, to Tiger, with your name, address and cheque number (if applicable). You will be notified through the board of your account number and password as soon as your registration fee is received.

The address to send off to for a discounted membership to Gods is: Discount Offer, Department PCW, Lap Of The Gods Ltd, 166 Portobello Road, London W11 2BB.

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New Releases

John Cook looks through this week's new arrivals

Amiga

Program Instant Music Type
Utility Micro Amiga Price
£29.95 **Supplier** Amosoft,
68 Lang Acre, London WC2E
9JH

Program Action F Type
Arcade/Strategy Micro
Amiga Price £29.95 **Supplier**
Amosoft, 68 Lang
Acre, London WC2E 9JH

Program Adventure Con-
struction Set Type Utility
Micro Amiga Price £29.95
Supplier Amosoft, 68 Lang
Acre, London WC2E 9JH

Program Skyfox Type
Arcade Micro Amiga Price
£29.95 **Supplier** Amosoft,
68 Lang Acre, London WC2E
9JH

Program Apple For Type
Arcade Micro Amiga Price
£29.95 **Supplier** Amosoft,
68 Lang Acre, London WC2E
9JH

Amstrad CPC

Program The Inheritance
Mystic in Las Vegas Type
Adventure Micro Amstrad
CPC Price £9.95 (paper)
£19.95 (disk) **Supplier** Infor-
mation, Ware House, Abbey
Road, Luton, Beds LU1
2HQ

Program Gunter Type
Arcade Adventure Micro Am-
strad CPC Price £9.95 (paper)
£19.95 (disk) **Supplier** Cas-
cade Games, Harrogate,
North Yorkshire

**Program Nemesis Adven-
ture Type Adventure Micro**
Amstrad CPC Price £13.95
(disk only) **Supplier** Advan-
tage, 33 Mafins Close, Chel-
mer, Essex CH3 4EW

Program Advantage C Type
Language Compiler Micro
Amstrad CPC Price £39.95
(disk only) **Supplier** Advan-
tage, 33 Mafins Close, Chel-
mer, Essex CH3 4EW

Program Vega Arcade Club
Type Arcade Micro
Amstrad CPC Price £9.95
Supplier Virgin Games, 2/4
Vernon Yard, Portobello
Road, London W11 2DH

Amstrad PCW

Program Advantage C Type
Language Compiler Micro
Amstrad PCW Price £39.95
Supplier Advantage, 33
Mafins Close, Chelmer, Essex
CH3 4EW

Atari

Program Raid Over Moscow
Type Arcade Micro Atari
52/50 Price £9.95 (paper)
£19.95 (disk) **Supplier** US
Gold, Unit 2/3, Holford Way
Holford, Nottingham NG12 7JX



Commodore 64

Program Adams and the
Allego Cavalier Type Arcade
Micro Commodore 64 Price
£9.95 (paper) £19.95 (disk)
Supplier Melbourne House,
80 High Street, Hampton
Wick, Kingston Upon
Thames, Surrey KT1 4DE

Program Optima in the
Underworld Type Arcade
Micro Commodore 64 Price
£1.99 **Supplier** Alpha-
Omega, CM, Group, 9 Kings
Yard, Capensers Road, Lon-
don E15 2HD

Program Relativ's Type
Arcade Micro Commodore
64 Price £1.99 **Supplier**
Alpha Omega, CM, Group, 9
Kings Yard, Capensers Road,
London E15 2HD

Pick of
the week

Deus ex Machina

Program Deus ex Machina
Type Micro Arcade Micro
Amstrad CPC Price £9.95
Supplier Nu Wave, CM,
Hamle, 9 Kings Yard, Capen-
sers Road, London E15
2HD

You have to hand it to
the guys at Automata -
they have their
reasons.

I will miss Christian Per-
sels displaying his manhood
in that orange tank juggling out
every Microfun - they dis-
posed as the Pines.

But Automata's creative
tool, the man with his last
bullet on the ground and dis-
cussed their was always the
Crocus.

A man of many opinions,
whose documented thoughts
startled contemporary move
ment, they observed "well ob-
served and, more often than
not, don't stop 'til they get to

'cross' - love him or hate him,
the guy has imagination. And
as far as computer software
goes, that imagination
reached its peak with Deus
ex Machina.

More like a concept album
(than a compilation, Deus is a
collection of fully scripted, but
simple arcade games linked
together by their stories) for
total setting. This alone
would be of interest, but the
action proceeds along with a
synchronised soundtrack of
words (scripts) include Jon
Persels and Frankie Howard
and music (Crocus).

The result had our office full
of amazed people at one time
- but commercially, it was a
 flop.

Who knows why, but it's
out now on Amstrad CPC and
MSX formats, marketed by
GR's Nu Wave label. At this
price a bargain, go out and
grab yourself a piece of com-
puting history.

Program Blackout Type
Arcade Micro Commodore
64 Price £1.99 **Supplier**
Amosoft, 68-87 New College
Street, London WC1 1PS

Program Demon's Inferno
Type Arcade/Adventure
Micro Commodore 64 Price
£9.95 **Supplier** Demand,
64-67 New Oxford Street,
London WC1

I had realised that medieval
scholars used PCW
6254s. But here we are,
at the beginning of an era
and venturing journey through
the new order of hell, and
when do we start? (Lima)
Well, obviously Deus

the 20th century can give a
history masterpiece - along
with such united company
as Adam Smith and the Fourth
Commandment for instance - in that
it has become the subject of a
computer game.

Programmed by Demon
Designs (now minus founder
members Carr and Howard),
inferno has you controlling
"pigmen" (instead, as all good
pigmen are, in raggedly old
clothing) through the new or-
der of hell to reach Purgatory
on the other side - which is
where some would say De-
mon have been for quite
some time.

The game is really a series
of mazes and puzzles, each
more involved by different
creatures and hazards, with
problems to solve at almost
every step.

The graphics are well de-
signed and the renaissance
type would make it refresh-
ingly different - however, the
united soul they shouted,
"It's like Super Wolf with
knives on," from the back of
the office, had a point.

No, well presented and at-
mospheric though this partic-
ular arcade system is, it is
not the program to pull Be-
yond-out of the darkness. But
just wait 'til you see Inferno
and Star Trek.



show a thing or two, and his
classic work Inferno has now
reached the ultimate arcade

Dragon

Program Dragon's Lair Type
Adventure Micro Dragon/Tandy
DoCo 32K Price
£5.95 Supplier Microdeal,
PO Box 88, St Austell, Corn-
wall PL25 4YD



Program Mountain Giant Type
Arcade Micro Dragon/Tandy DoCo 32K
Price £5.95 Supplier Microdeal,
PO Box 88, St Austell,
Cornwall PL25 4YD

Program Cuthbert and the
Golden Chalice Type Arcade
Micro Dragon/Tandy DoCo
32K Price £5.95 Supplier
Microdeal, PO Box 88, St
Austell, Cornwall PL25 4YD

QL

Program War in the East
Scenario 1: Barbarian Type
Strategy Micro QL Price
£10.95 Supplier TK Com-
putersware, Stone Street,
Stanford, Ashford, Kent
TN25 5DP

Program War in the East
Scenario 2: Strategist Type
Strategy Micro QL Price
£10.95 Supplier TK Com-
putersware, Stone Street,
Stanford, Ashford, Kent
TN25 5DP

Program War in the East
Scenario 3: Destruction of
Army Group Central Type
Strategy Micro QL Price
£10.95 Supplier TK Com-
putersware, Stone Street,
Stanford, Ashford, Kent
TN25 5DP

Program War in the East
Scenario 4-6 Type Strategy
Micro QL Price £20.95
Supplier TK Computersware,
Stone Street, Stanford, Ash-
ford, Kent TN25 5DP

Spectrum

Program 3D Game Master
Type Utility Micro Spectrum
Price £9.95 Supplier CDS
Group, 9 Kings Yard, Cam-
panerie Road, London E16
2ND

Program Dragon Type Ar-

Program Renaissance Type
Arcade/Adventure Micro
Spectrum Price £1.99 Sup-
plier Farford, 66-67 New
Oxford Street, London
WC1A 1PS

Program The Happiest Day
of Your Life Type Arcade/
Adventure Micro Spectrum
Price £1.99 Supplier Far-
ford, 66-67 New Oxford
Street, London WC1A 1PS

Program Dr Who Type Ar-
cade Micro Spectrum
Price £7.95 Supplier CDS, 9
Kings Yard, Campanerie Road,
London E16 2ND

Program 2D Science Type
Arcade Micro Spectrum
Price £2.99 Supplier £2.99
Classic, 111A, Archer House,
Archer Road, Aldridge, Wal-
sall W83 9RW

Program Metal Type Ar-
cade Micro Spectrum Price
£1.99 Supplier Farford,
66-67 New Oxford Street,
London WC1A 1PS



Not quite a classic in its
own right, but still worth
getting.

Program Paddy Type Ar-
cade/Adventure Micro
Spectrum Price £7.95 Sup-
plier Classic Games, 21
Canton Crescent, Southamp-
ton SO2 2HR

Paddy is its name. "A
game which demands
concentration, guts and
intelligence in ways no other
game does." You bet, since
your tasks include cleaning
feeding and generally providing
a human baby with you
£5000 - a synthetic one
and no, it doesn't mean you
will a lot of pleasure at-
tempting to lead the kid
through the laboratories of
the machine science. Wand-
erback Biting at it is intended

because "you're not
grown up" or "not old
enough to come to the pub"
and look what they get up to
when they get there! Here's your
chance to find out what it's really
like in those smoke filled haunts
of adulthood. The opportunity to
see how good you are in these
ADULT77 games.
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have all the fun. Pub Games can
be a laugh for everyone.



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OUT NOW!

The selling game

What's the difference between a budget game and a full price game? Okay, I'll run that one past you again - what's the difference between a budget game and a full price game, apart from seven or eight pence?

I see this is confusing you; let's try it another way. Was the last full price game you bought five times better than the last budget game you bought? That's one way of looking at it, yet my pet marketing expert tells me the real difference between full price and budget is actually where the product is sold.

When something is cheap so that many will have several grants of truth in it, maybe it's time to examine what's going on.

When the games market started, no-one had much idea about anything and the concept of 'price points' for computer software was still a twinkle in the eyes of as yet disappointed marketing managers.

Experienced business people had yet to take home computers seriously, and the wacky, entrepreneurial/programmer types just cracked the stuff out for what they thought would sell. Looking at some 31 year old *Rapids*, that option seemed to vary from £4 to £10.

However, things started to change when shiny jets and full colour cassette images were introduced - games were suddenly a youth culture in-

dustry. Enter the professionals.

Professionals know that for each kind of product there is a price which the consumer likes. Not too expensive - as you need to maximize your profits without losing too many sales, but there again, not too cheap, or the consumer will believe the product to be worthless. This is known as a price point.

For software, this appeared to be around £9 for Spectrum games and £10 for Commodore 64/Amstrad CPC (later all, they paid more for their machines, didn't they?).

As the industry boomed, everyone who programmed for the right machines prospered and was happy. This is 1984, some budget software, pioneered by Massmart.

The professionals laughed. In 1986, one in five games sold in a Massmart game, four out of 10 games sold in a budget title and this time next year it'll be at least six out of 10. So what's gone wrong with the status quo?

What Massmart realized first - and others are realising now - is that when we consider the industry, price point is just too high. The punters don't see you and not as important to pay out large sums of money for a product of intermediate quality.

High prices do not guarantee high quality (eg, *The Great Escape*), so why bother? At least if a £1.99 game is a dud, you haven't blown a month's pocket money.

Now that budget software has developed so that it consistently overlaps with 'full price' in terms of quality, there are even more problems.

An 'industry figure' I was talking to recently was irate. "They seem to be selling a full price product at budget prices - I would put it the other way around. As the quality of budget software improves, it is harder for other companies to justify the 'traditional' price tag at a tender."

Companies are no longer 'whooosh' going the other way - they are simply everyday consumer items, and twice the price of an LP is not much for a single computer game, unless the quality is considerably above that of budget level - and that is where the real opportunities and complex strategy games may be an exception here.

"But if we sold our products cheaper, we would go out of business," I hear the cry.

Well, I don't see Massmart rapidly going down the tubes. The fact is that lower prices would mean increased sales, less inventory and more interest in the hobby.

There will always be the dilett of this world - well worth the money - but as for as the run-of-the-mill releases are concerned, the average price should fall lower. How about it, then? Never mind the profit margin, just feel the sunburst.

John Oakes

NEXT WEEK

Special Supplement Micros and Music

The music supplement is packed with reviews of the latest products - the Spectrum 1000 synthesizer/jam-studio/midi machine from Ram Electronics, Creative's sound sampler, Kawai's K-4000 digital synthesizer, and the Amstrad Advance Music System. Plus news from the States of all the forthcoming Commodore and Atari music packages.

Hardware

The reviews of Com's PLUS2 printer/plotter and the Panasonic 2 system, which has to be omitted from this issue due to lack of space, will be appearing in the October 2 issue. The Com's PLUS2 is both Commodore and CP compatible, while the plotter can be used with a wide range of micro.

Star Glider

At long last, Reinhold's *Star Glider* is finished and ready for release. We bring you a full review.

Competition

The last volume fiction movie able for you to identify in our great external giveaway.

Program Adventure Type
Avalanche *Adventure Micro*
Amstrad CPC Price £15.95 (plus
£13.95 (plus) **Supplier** Can-
nole Games, Harrogate,
North Yorkshire.

Program Adventure Type
Adventure *Micro*
Amstrad CPC Price £15.95
(plus) only **Supplier** Adven-
ture, 30 Maple Close, Chir-
nor, Oxon OX9 4EW.

Program Adventure C Type
Language *Commodore Micro*
Amstrad CPC Price £20.00
(plus) only **Supplier** Adven-
ture, 30 Maple Close, Chir-
nor, Oxon OX9 4EW.

Micro Commodore 64 Price
£9.95 (plus) £14.95 (plus)
Supplier Melleware House,
60 High Street, Hampton
Wick, Kingston Upon
Thames, Surrey KT1 4QB.

Program Graphics in the
Onlineworld Type Arcade
Micro Commodore 64 Price
£1.99 **Supplier** Alpha-
Graphics, CR Group, 9 Kings
Yard, Carpenter Road, Lon-
don E16 2HD.

Program Abolish Type
Arcade Micro Commodore
64 Price £1.99 **Supplier**
Alpha-Graphics, CR Group, 9
Kings Yard, Carpenter Road,
London E16 2HD.

where do we want? UPPO.
Well, obviously Dante



know a thing or two, and his
classic work *Inferno* has now
received the ultimate accolade

of music and puzzles, each
more inhibited by different
creatures and hazards, with
problems to solve at almost
every step.

The graphics are well de-
signed and the resurrections
type sound track is refresh-
ingly different - however,
the audio that played,
"It's like *Star Wars* with
notes on," from the back of
the official, had a point.

No, well presented and at-
mospheric though this parti-
cular arcade adventure is, it is
not the program to put be-
hind you on the shelves, but
just wait till you see *Inferno*
and *Star Trek*.



AND THEY CALL THEMSELVES
ADULTS!!!

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